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AN

EXPOSITION

OF THE

SIGNS AND SYMPTOMS

OF

PREGNANCY,

THE

PERIOD OF HUMAN GESTATION,

AND THE

SIGNS OF DELIVERY.

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No. 141

BY W. F. MONTGOMERY, A. M., M. D., M. R. I. A.,

VICE PRESIDENT AND PROFESSOR OF MIDWIFERY IN THE KING AND QUEEN'S COLLEGE OF PHYSICIANS IN IRELAND.

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TO

MAURICE COLLIS, ESQ.,

SURGEON TO THE MEATH HOSPITAL, AND ONE OF THE BOARD OF CENSORS OF THE ROYAL COLLEGE OF SURGEONS IN IRELAND,

THIS VOLUME IS INSCRIBED,

FOR THE PURPOSE OF EXPRESSING
THE AUTHOR'S WARM AND GRATEFUL ACKNOWLEDGMENT
OF HIS CONSTANT AND DISINTERESTED FRIENDSHIP, NOW CONTINUED
THROUGH MANY YEARS OF MULTIPLIED KINDNESSES:

A MAN NOT LESS DISTINGUISHED IN PUBLIC
FOR HIS PROFESSIONAL ATTAINMENTS,
THAN ESTEEMED IN PRIVATE LIFE FOR HIS STERLING WORTH,
HIS RARE AND ACTIVE BENEVOLENCE,
AND MANY CHRISTIAN VIRTUES.

"Hoc autem velim omnes tenere et scire, me scripsisse tironibus; non excellentibus in arte Professoribus, nec peritis atque exercitatis magistris; quibus, in hoc libello, plura leviora et vix commemoratione digna videbuntur, quæ, tamen, discentium in gratiam, repetenda fuerunt."—PLATNER.

PREFACE.

In the year 1833 I wrote the article "Signs of Pregnancy and Delivery" for the Cyclopædia of Practical Medicine, and took considerable pains to embody in that paper as full an account of those branches of professional knowledge as was compatible with the form in which it was to appear. The favourable opinion which was formed of that article, and the acknowledged importance of the subjects which it embraces, suggested, that, with the addition of certain topics before omitted, and a more ample detail of some, which, from the nature of the work in which it was published, it was deemed necessary to compress as much as possible, it might be made to assume a much more extensively useful form; in order to accomplish which, I can truly say that no trouble or exertion has been spared on my part.

The present work has been almost entirely re-written, with the addition of such new matter, as the writer's observation and further experience enabled him to contribute, conjoined with such information from other sources as appeared consonant to truth, and likely to be useful in practice.

A preliminary chapter on the State of the Female System during Pregnancy appears now for the first time: the same may be said of several other sections which it is unnecessary to particularise; and I have endeavoured to notice every recent discovery, or suggestion made up to the present day, as fully as my own knowledge enabled me to do, or their value appeared to deserve; and, of one of these, I wish to observe here, that since I wrote the remarks in p. 126 on the purple colour of the vagina, asserted by Kluge and Jacquemin to be, invariably, an attendant on pregnancy, I have examined a few more cases, and, while in some of these its existence was very obvious, in others it was so slight as to be scarcely, if at all perceptible.

A still more full and minute account is now given of the changes observable in the breasts and their areolæ, and of their value as a sign of pregnancy. I wish here to repeat, that my confidence in the condition of the areola as a diagnostic mark of pregnancy is not

only unabated, but very much increased by further observation; and I rejoice to find, that Dr. Hamilton, who has recently published his opinion on this important point, and whose support and confirmation of my views are, as they ought to be, so highly gratifying, has drawn the same conclusion from forty years' examination of the subject.

In the section on the Period of Human Gestation, I have been enabled to bring forward a few instances, in which, from peculiar circumstances, the time of conception was exactly known, and, in consequence, an opportunity afforded of observing, on the one hand, the natural duration of human pregnancy, and, on the other, the occasional extension of its limits; which, although long a *vexata quæstio*, and indeed still continues so, appears to me to be perfectly established by facts.

Under the head of Signs of Delivery, some precise measurements are added of the size of the uterus at stated intervals after delivery, taking place at different periods of gestation; a kind of knowledge in which, although confessedly of the greatest value, there is a great deficiency in our medico-legal works.

The paper on Spontaneous Amputation of the Fœtal Limbs is foreign to the professed scope of this volume; but I was induced to insert it from considering, that, although a subject of singular interest, it was comparatively but little known; that the solution of the difficulty as to the nature of the process, which I had promulgated a few years ago, had, since then, received the sanction of some very distinguished authorities, not only here, but on the continent, and in America; and lastly, that, since the publication of my former observations on this subject, some additional cases of the kind had been observed by myself and others, which appeared worthy of being made known.

When we consider the peculiar nature and immense importance of the subjects treated of in this volume, whether we regard them in a professional, social, or legal point of view, and the extreme difficulty not unfrequently to be encountered in coming to a correct conclusion on such questions, on which, however, may depend more than on the result of any other deliberation in medicine or surgery, for these can affect only life or health, but in the questions to be considered in the following pages, are concerned, in addition, virtue, honour, domestic peace, legitimacy, and the rights thence derivable, in short the closest ties that bind together and sanctify the most delicate and important of our social relations; while the difficulties that beset us, in such investigations, are as intricate and

embarrassing as they are numerous and deceptive, even to those who have long and carefully considered them; among whom, I apprehend, few will be found to dissent from the opinion of Van Swieten, that "there is no circumstance where a physician's reputation runs so great a risk, as when he is employed to determine concerning pregnancy: if he is not exceeding cautious, there are, every where, a number of frauds, a number of insidious, cunning tricks, by which he may be easily imposed upon:" under such circumstances, then, I may hope that the present work will not be considered superfluous, especially, as there is not, as far as I know, any sufficiently comprehensive account of the subject, either in our own language, or in any other, of which I am aware. Schmitt's work on Doubtful Pregnancy, which has been deservedly spoken of in such high terms by Dr. Gooch and others, is undoubtedly of great practical value, but it was written nearly twenty years ago, and consequently contains no information on some points of importance, with which later investigations and recent discoveries have enriched obstetrical knowledge: thus, for instance, he does not, and indeed could not, mention the application of mediate auscultation as a means of ascertaining certain phenomena connected with pregnancy; other modes of examination of still more recent date are, of course, unnoticed by him, and even some of those which have been long known, he notices but very briefly, or omits altogether; ballottement, or repercussion, he dismisses almost in a line as superfluous and hazardous; the evidence to be derived from the mammary sympathies, he hardly alludes to, and of the characters belonging to the areola, he gives no description at all; nor does he enter into any of the details connected with the examination of the uterus and its appendages after death, and of course omits the important subject of the corpus luteum. Still, his work, as an account of several cases of doubtful pregnancy, and the modes of examination adopted in their investigation, is of great utility, and will be referred to, with signal advantage, by all who are engaged in such enquiries.

AN EXPOSITION, &c.

CHAPTER I.

GENERAL OBSERVATIONS ON THE STATE OF THE FEMALE SYSTEM DURING PREGNANCY.

After weighing the matter very carefully in my mind, it appeared to me that it would conduce to a clearer and more satisfactory appreciation of the value of certain details on which we must hereafter enlarge, if, before entering on the consideration of individual signs of pregnancy, we were to premise some general observations on the effects produced in the female system by that condition, whether resulting from the necessary alterations in the component structures and size of the uterus, and the consequent change of relations between it and other organs, or from certain physiological phenomena connected with the train of actions originating in conception, and thence necessarily continued for the evolution and development of the new organisation; and then to glance briefly at some of the practical considerations more obviously connected with these phenomena in their relation to external objects, and to notice the precautionary measures by which we would seek to protect the pregnant female from any injury she might sustain from their influence. It is well known that immediately on conception the uterine system becomes endowed with a remarkable increase of vital action affecting its various constituents, so that it is thrown into a condition which, if not properly inflammatory, we may certainly consider with Baillie[1] "a state analogous to inflammation:" thus there takes place at once a great increase in the vascular supply directed towards the organ and its appendages, the vessels are gorged and distended with blood, and many of them, previously impervious to its passage, now begin to circulate that fluid freely: the tissue of the organ becomes infiltrated with serum, so that its bulk is increased, its texture softened, and its fibres separated, while upon its internal surface lymph is poured out to line that cavity with the decidua, which partakes largely of the characters of the false membranes,[2] the results of inflammatory action in other situations: subsequently large quantities of serum are rapidly secreted to form the liquor amnii; and, lastly, the nerves of the uterus increasing both in number and size, as W. Hunter,[3]

[1] Hunter on the Gravid Uterus, p. 82.

[2] Vide Baillie ut jam cit. "La membrane caduque est l'analogue des fausses membranes et la preuve de l'excitation de la matrice."—*Burdach.*

[3] Anat. Grav. Uterus, p. 21.

suspected and Tiedemann[1] has proved, impart to it a more exalted degree of sensibility, which from their close connection with the great abdominal plexuses is quickly diffused throughout the system at large, which is soon found to participate in the excitement emanating from the uterus:[2] there is felt a sensation of feverish uneasiness, chills alternating with flushes of heat, sick stomach, disturbed sleep, languor, and sometimes drowsiness; menstruation is suppressed, and the breasts soon begin to evince an active sympathy, becoming swollen and sensitive; the pulse is generally quickened, especially at first, the blood exhibits modified characters of inflammation, and venesection is found the most effectual means of relief in many of the most urgent affections of pregnancy, "even in constitutions," says Denman,[3] "which at other times do not well bear that evacuation:"—all of which, it may be observed, appear the natural, and no doubt salutary consequences of the plastic activity prevailing in the great organ of reproduction at the time.

In consequence of this increase of vital action imparted to it, the uterus acquires a principle of growth which steadily proceeds, until, instead of being an insignificant organ buried deep amongst the contents of the pelvis, it attains to dimensions of such magnitude, and undergoes changes in its component structures so remarkable, that, whether considered absolutely or relatively, they present to our observation a series of phenomena at once the most extraordinary and beautiful of any that claim our admiration in the arrangements of the animal economy: surely the enthusiasm of Swammerdam is not to be censured as excessive when he described it as the *miraculum naturæ*. The virgin uterus is about $2\frac{1}{2}$ inches long, $1\frac{3}{4}$ broad, and about an inch from back to front, with a cavity which would not more than receive into it the kernel of an almond. According to the calculations of Levret, its superficies may be taken at 16 inches, but at the end of the ninth month of gestation its length is from 12 to 14 inches, its breadth from 9 to 10, and from back to front from 8 to 9 inches: its superficies is now estimated at about 339 inches, and its cavity, which before impregnation was equivalent to about $\frac{1}{14}$, or *quam proxime* $\frac{3}{4}$ths of a cubic inch, will now contain 408, so that its capacity is increased a little more than 519 times, and its solid substance from $4\frac{1}{3}$ to 51 cubic inches, or nearly in the ratio of 12 to 1; and at the same time a similar increase of size is observed in its several constituents; for instance, bloodvessels which before conception would not have admitted the point of a probe will now readily receive the end of our finger, and yet let but a few weeks elapse after parturition, and the organ has again resumed its original contracted and diminutive state. But, as we might anticipate, such expansion of an organ so situated must involve many changes affecting other parts also, and as it acquires this

[1] Tiedemann, Tabulæ et Nervorum Uteri Descriptio, p. 10.

[2] "Lobstein compare l'uterus d'une femme grosse à un organe attaqué d'une inflammation lente et chronique."—*Desormeaux.*

[3] Introduction, p. 220.

increase of volume, it gradually deserts the pelvis and rises out of its cavity into that of the abdomen, disturbing the relations hitherto existing not alone between it and other abdominal viscera, but also the ordinary relations of these with each other. The first organ generally affected in this way is the bladder, which in the early periods of pregnancy is liable to increased irritability, owing to its receiving its supply of nerves from a common trunk with those of the uterus, so that frequent micturition is often a very early consequence of a gravid uterus, and one which occasionally continues very troublesome throughout the greater part of gestation. Sometimes retention of urine is caused by the mechanical pressure of the uterus before it has quitted the cavity of the pelvis, though sometimes the same symptom occurs without our being able to detect this or any other obvious cause for its production. Towards the close of pregnancy the female is often unable to retain her water except for a short time, and suffers much inconvenience by its coming away involuntarily while she walks, or if she coughs, laughs or sneezes; this is caused by the weight of the uterus resting on the fundus of the bladder, which it presses heavily against the inner and upper edge of the symphysis pubis, over which it is now in some degree turned, in consequence of the uterus in its ascent drawing it up as well as the vagina, with the anterior wall of which the bladder is so intimately connected; and from the stretching of the round ligaments of the uterus, as well as from the increased sensibility of the nerves which they contain, considerable uneasiness is felt in the direction of these cords and about their termination at the sides of the pubes. This uneasiness extends also along the nerves of the thigh, producing numbness, cramps, and even considerable pain along the limb, which latter symptoms are often observed amongst the earliest indications of uterine irritation, whether arising from functional derangement, organic disease, or the healthy excitement of pregnancy. It is not unusual under such circumstances to find the power of one or both of the lower limbs considerably impaired; and in some few rare instances they have become partially or completely paralytic, and even hemiplegia has been observed; but to what degree the mere enlargement of the uterus is the agent in the production of such a state seems very doubtful; the blood drawn under such circumstances has been observed to present highly inflammatory characters, but whatever measures may be adopted, the affection is never perfectly removed until after delivery, from which it would appear to depend on cerebral disturbance, originating probably in uterine irritation, and referrible to the state of pregnancy as its specific cause.

When the uterus has acquired considerable size, it begins to interfere with the circulation, especially that through the veins, and by its pressure upon the trunks which return the blood from the lower extremities and parts within the pelvis, gives rise to anasarcous swellings of the feet and legs, and sometimes to more formidable effusions within the cavity of the peritoneum. Varicose veins and hæmorrhoidal tumours are probably to be ascribed to the same cause, though perhaps the latter would be with more propriety

referred to congestion of the hæmorrhoidal veins from the torpid and constipated state of the bowels. Having so far assigned a mechanical agency in the production of these anasarcous swellings which so frequently occur in pregnancy, it must be observed that, although they may thus be to a certain extent satisfactorily accounted for in the lower extremities, there is frequently evidence of some more general cause operating in the system, probably the increased activity of the exhalants, which is indeed a condition of these vessels necessary for the performance of a very important process essential to the well-being of the fœtus, namely, the secretion of the liquor amnii. Without reference to some such general action, we could not satisfactorily explain the production of œdema of the upper extremities and face which sometimes accompanies pregnancy, as in a lady seen by the writer a few weeks since in the ninth month of pregnancy: about the middle of the eighth, swelling of her feet and legs began, and continued until it reached half-way up the thighs; then her hands became similarly affected, she could hardly close them, and was obliged to put off her rings; her face at length became affected and to such a degree that when she got out of bed in the morning her eyes would be scarcely visible. I may just observe here, that when this latter form of œdema takes place, it ought to claim our most serious attention, as it is connected with a state of the vascular system which, if active depleting measures are not previously adopted, will probably give rise to convulsions at the time of labour, of which the case of the lady above alluded to was a well-marked instance. When the uterus has acquired its full growth, it occupies a very large space in the abdominal cavity, pressing both the liver and stomach upwards against the diaphragm, by which the capacity of the chest is diminished, the action of the lungs impeded, and a greater or less degree of dyspnœa induced, while at the same time the passage of the bile into the duodenum is interfered with, and slight jaundice makes its appearance, or considerable disorder of the stomach with very imperfect digestion renders the patient very uncomfortable. Owing to the oblique attachment of the pelvis to the spinal column, and the projection of the sacrovertebral junction coming in contact with the posterior surface of the uterus as it increases in size and begins to ascend out of the pelvic cavity, that organ cannot rise perpendicularly, but its fundus is inclined forwards with its anterior surface lying against the peritoneal lining of the abdominal parietes,—a relation of parts which continues unchanged throughout the whole period of pregnancy, and which should be well borne in mind in case of any operation being performed, as for dropsy, or umbilical hernia, during gestation, lest some such miserable result should ensue as is said to have happened some years ago in this country, when a trochar was thrust through the gravid uterus and into the child's head, another instance of which fatal error is mentioned by Desormeaux[1] as having taken place at Paris.

[1] Dict. de Méd. tom. x. p. 447.

From this anterior projection or obliquity of the uterus arise to the female some inconveniences and many important advantages: amongst the former are, the pressure on the bladder already noticed, the stretching outwards of the abdominal muscles and integuments, which frequently become very sore and painful, and even suffer structural injury, in consequence of which cracks take place which retain a white or pearly hue and remain permanent: in some rarer instances the distension is sufficient to cause separation between the muscles, of which I lately saw an example where the recti had separated from each other to the breadth of my hand; and it may be observed here that when this has happened and the woman again becomes pregnant, the uterus is liable to fall forward to a very unusual degree, and at the same time distorting the cervix, a condition of the parts may be induced so unnatural as to give rise to a belief in the existence of extra-uterine gestation. The umbilical ring not unfrequently suffers dilatation, and there is a disposition to hernia at that part, or even complete protrusion may occur, as I lately saw happen: occasionally the injury done to the muscles and aponeuroses remains permanent, and allows of a degree of protrusion of the abdominal viscera at all times. There is another affection which I believe to be also produced in the same way, though constantly mistaken for and treated as local inflammation;—I speak of a pain felt at either side about the margin of the ribs, and arising from the dragging of the muscles at their insertions in that situation, especially of the obliqui at their superior attachment. I have seen this pain, when affecting the right side, actively treated as inflammation of the liver, but of course without benefit, and afterwards completely relieved by rest, friction with an anodyne liniment, and the support of a proper bandage. Lastly, from this obliquity of the uterus the direction of the centre of gravity is changed, and instead of falling between the feet, it falls in front of them, in consequence of which the person has an inclination to fall forwards, and in order to prevent this is under the necessity of throwing back the head and shoulders, and assuming that pompous air which is so often unjustly attributed to a wish to make a display of her condition. In persons of very short stature, when the pelvis is contracted; in those who have borne many children, and have the abdominal muscles greatly relaxed, or perhaps separated; or where the sacro-vertebral curve is very prominent, the anterior obliquity of the uterus is proportionally increased; and should some of these causes happen to concur in any individual case, the uterus may not only be thrown into a position of excessive obliquity, but may project horizontally: it has even been found, under a combination of such circumstances, with its fundus turned a little downwards, as happened in the case of the little deformed woman mentioned by W. Hunter.[1]

Having now enumerated the inconveniences thus entailed, it may be suggested that many of them may be very effectually relieved

[1] See Anat. Grav. Uterus, p. 9.

by the use of a simple article of dress, consisting of a broad band or belt with india-rubber straps let into it, and so arranged that it will raise the uterus a little and carry it at the same time upwards and backwards. Now let us turn our attention to the advantages secured by this anterior projection of the uterus, and we shall find how greatly they preponderate, as is ever the case in all the arrangements of infinite wisdom, but in none more strikingly or beautifully displayed than in those by which the perpetuation of our species is effected. These advantages then are felt alike during the progress of gestation and at the time of labour: during the former period the uterus with its contents is prevented from sinking perpendicularly downwards into the bottom of the pelvis, where, owing to the upright position of the female, it would have a continual tendency to prolapse through the soft parts forming the floor of that cavity; and even if this did not happen, such pressure would be made on the bladder and rectum as must completely prevent the performance of their respective offices; whereas by the existing arrangement the weight of the uterus and its contents is supported by the anterior wall of the pelvis and the adjoining lower section of the abdominal parietes. Again, by this position of the uterus its longer axis, or the line in which its expulsive effort is directed when in action, is brought into coincidence with the axis of the abdominal aperture of the pelvis; so that, when labour commences, the child is presented for entrance into that cavity in the direction the best possible to facilitate its transmission. The particular changes affecting the os and cervix uteri will be fully considered in a future section.

It has been already noticed that the state of pregnancy is one of increased vascular action, not only in the great organ primarily affected, but generally throughout the system, by which a disposition is created to certain affections indicative of plethora, and best alleviated by venesection or other depleting measures. This natural tendency to redundance during this state is too often cherished and increased, to the great prejudice of the woman, by mismanagement of her diet, neglect of the state of the bowels, and the want of proper and sufficient exercise, all of which mutually react upon each other, each rendering the effect of each still more decidedly injurious. It cannot escape observation that during gestation the activity of the alimentary canal is almost always greatly impaired, and hence one strong reason is suggested for greater caution in selecting food of a proper kind, and for restriction in its quantity. Nature, as a safeguard, resorts to vomiting, thereby, as it were, declaring her opinion that there is something superfluous in the system, the evacuation of which is not only beneficial to the parent but subservient to the welfare of the child, which we know is but too surely threatened when in the early months the disposition to vomit suddenly subsides. The popular prejudice on this subject is, that a pregnant woman having two to feed ought to swallow a double supply of nutrition, while nature declares the exact contrary by disposing her to reject a large proportion of what she takes, and

making her averse from many of the richer kinds of meat, which at other times she would eat with pleasure. Moreover, experience has shown that the perfection of the fœtus either as to health or size depends very little on the quantity of nutriment supplied to the mother during gestation; hence the attempts that have been made to restrain the growth of the child by diminishing the food of the mother have not only signally failed[1] in accomplishing the object intended, but the children have been, in some of the trials, unusually large and well-thriven. It is a common remark that women who emaciate during pregnancy bring forth healthier children and have easier labours than others, and the same observation will frequently be verified even where the irritability of stomach is so great that they are continually rejecting its contents, even to such a degree as to endanger their safety from exhaustion, as in such cases as that related by Mr. Vaughan;[2] while on the other hand we have the experience of Denman[3] that "if the mother has little uneasiness and grows corpulent, during pregnancy, the child is generally small." But supposing the vulgar notion to be correct, and that the nutrition and bulk of the child were promoted by such means, the result to the mother must be a proportional increase of difficulty in her labour and of suffering from its size, as well as from the less regular action of the uterus in a system overloaded and under the influence of feverish excitement; even protraction of labour is but a secondary evil amongst those to which repletion and excited circulation expose the female. Inordinate secretion of liquor amnii with its frequent consequence, relaxation of the uterus after delivery, hæmorrhage, convulsions, inflammation, are evils which will be the more surely entailed, if at the time the state of the bowels be neglected; and we are fully entitled to add to this catalogue, mania with its train of horrors, whose fearful visitation we have often good reason to believe owes its origin to improper indulgences in diet and want of attention to the action of the alimentary canal. As another means of guarding against such evils, the necessity for regular exercise during pregnancy should be strongly enforced, and the absurdity pointed out of the fashionable habit so much and so injuriously indulged in by fine ladies, who lounge all day long on their sofa, or spend half their day in bed, gratifying a mere indolence of habit which they calculate on being allowed or even encouraged to indulge in, on account of their situation; while others erroneously adopt such a course from a belief that exercise is unfit for, or likely to prove injurious to them. But they should be made fully aware how hostile to their present comfort and future welfare is such inactivity, by which a universal torpor of the system is induced, with sluggish action of the liver, indigestion, want of sleep, and a

[1] Vide Merriman's Synopsis, pp. 178, 319 et seq.

[2] Mem. Lond. Med. Soc. vol. ii. p. 125. See also the observations of Assalini, Nuovi stromenti de obstetricia e loro uso, 1811, and Merriman ut supra.

[3] Introduction, 5th ed. p. 237.

train of nervous anxieties which harrass and depress the spirits. How different this from the joyous buoyancy of the sturdy peasant female, whose daily round of laborious occupations is continued without interruption to almost "the hour of nature's sorrow;" who

> "Instanti cum plena tument quoque viscera partu
> Æquat humum rastris, segetem nascentibus herbis
> Liberat, in longos religat sarmenta maniplos
> Et duri patiens ita rursus, amansque laborum est,
> Inter ut agrestes operas enixa, marito
> Progeniem referat, quam non peperisse, sed agris
> Invenisse putes."[1]
>
> Vanier. Præd. Rust. lib. ii. p. 47.

It should be strongly impressed on the mother that the advantages obtained by well-regulated habits are by no means exclusively conferred on her, but that others equally important are thereby secured to the child, for whom a larger supply of nutrition, and of a better quality, will thus be provided, and so being plentifully nourished by sound and healthy fluids, it shall commence its career of life strong, vigorous, and less liable to those morbid debilities and derangements which afflict the children of the indolent, the pampered, or the debauched. It is even asserted by late observers, that the number of cretins in the valais is much diminished since the women have adopted the custom of passing the time of their pregnancy in elevated situations of the country, where they are not exposed to the damps which prevail in the depths of the valleys. Many a mother, with whom no other argument would prevail, might be weaned from injurious indulgences, if it were thus represented to her, that not alone her own, but the future health and happiness of her already loved unborn infant, must be vitally influenced by the life she leads, while it is as yet drawing its very existence from her blood.

When speaking of the physical changes which the uterine system undergoes in consequence of impregnation, it was remarked, that the nerves distributed to the organ and its appendages were augmented in size and number, and having their sensibility exalted diffused throughout the system generally an increase of nervous irritability, which displays itself under a great variety of forms and circumstances, rendering the female much more excitable and more easily affected by external agencies, especially those which suddenly produce strong mental or moral emotions, whether of the exhilarating or depressing kind, as fear, joy, sorrow, anger. The powerful

> [1] Who, teeming with the soon expected birth,
> Weeds the young corn, or harrows down the earth,
> Patient of toil, with careful hand she twines
> And trains the tendrils of the straggling vines,
> Intent on labour; nor as yet forbears
> Till pain o'ertakes her 'midst her rustic cares.
> Her bosom's load so easily she yields
> One might suppose she found it in the fields."

influence of such impressions over the functions and actions of the uterus in every stage of female life after puberty, is recognised in a multiplicity of circumstances, whether as deranging menstruation, inducing abortion, modifying the energy of parturient action, or in affecting the recovery from child-bed.[1] Hence the importance of preventing, as far as possible, pregnant women from being exposed to causes likely to distress, or otherwise strongly impress their minds. Sights of an affecting kind, books, pictures, or theatrical representations which may deeply excite the imagination or engage the feelings, are decidedly unsafe, and in illustration of the dangers which may thence arise, I shall mention one or two instances. I was once urgently called to see a lady who had gone to the theatre, when two months pregnant, to witness some grand spectacle in which armed knights on horseback were to cross a bridge and storm a castle; while doing so the bridge gave way, and the cavalcade were precipitated into the canvass torrent, and some of them much hurt: the lady was dreadfully terrified, screamed, fainted, and was carried home almost insensible; when it was discovered that she was floodingly profusely, under the influence of which, and the previous fright, she soon became alarmingly exhausted: however, by the adoption of proper measures she was restored and tranquilised, but she miscarried before morning. Another case was that of a lady, who, after passing several years of her life in straitened circumstances, and actively employed, married when no longer very young, and was thereby placed in a condition of comparative affluence, which, unfortunately for herself, enabled her to dispense with any further exertion, and to indulge a natural inclination to indolence and sedentary habits. She soon became pregnant, and spent her whole day lying on a sofa at the fire-side, or with her feet on the fender, reading novels, eating and drinking heartily, and having a discharge from the bowels perhaps once or twice in the week. Amongst the books which she thus daily devoured, was one containing a highly wrought description of one of the Maisons de Santé in France, and of its inmates; this affected her strongly, and took great hold on her mind, and she expressed the greatest desire to visit one of the large lunatic asylums in this city, that she might assure herself of the reality of such things as she had been reading of. In this wish she was indulged, as in every thing else, whether right or wrong, to which she took a fancy, and the consequence was that the appearance of the persons she had seen, and their extravagant expressions and gesticulations continued to haunt her imagination incessantly up to the time of her delivery, on the third day after which she showed symptoms of insanity which became rapidly confirmed, and continued for many months. During her illness, and after her recovery, she repeatedly told me that from the time of reading the book and visiting the asylum, she felt as if she would certainly become deranged.

[1] Vide Burrows on Insanity, p. 378, and Merriman, Synopsis, pp. 33. 224.

Morgagni tells us of "a certain woman in the fourth month of her pregnancy, and just entering upon the fifth, when news was suddenly brought to her of the instant death of her absent husband: being struck with grief and fear at the same moment, she, from that very time, at first observed the motion of the fœtus to be made more languid, and after that to cease entirely. And at the end of the eighth day, after she ceased to feel the child's motion, she miscarried." "You see then," he subjoins, "what power passions of this kind have in producing these effects."[1]

A striking and pathetic illustration is also recorded in the first book of Samuel,[2] in the account of the death of Eli's daughter-in-law, "who was with child near to be delivered; and when she heard the tidings that the ark of God was taken, and that her father-in-law and her husband were dead, she bowed herself and travailed, for her pains came upon her. And about the time of her death, the woman that stood by her said unto her, fear not; for thou hast borne a son: but she answered not, neither did she regard it." Dr. Merriman[3] relates a most melancholy case, in which, during labour, the abrupt entrance of a person, much disliked by the female, was instantly followed by a fit, which put an end to her life. I believe it is well known, that during the years which immediately succeeded the lamented death of the Princess Charlotte, the most gloomy anticipations clouded and depressed the minds of pregnant and parturient women in these countries, and in the opinion of some of the most competent judges many untoward events were thus produced in child-bed. "Indeed," says Dr. Merriman,[4] "this calamitous event is still found to operate unfavourably on the minds of patients in a certain rank of life;" and a similar opinion is expressed by Dr. Ramsbotham[5] with reference to this unfortunate case, from which, he says, "danger was transferred to others; the shock sustained by many women towards the close of pregnancy on the distressful communication, shed a baneful influence on the process of parturition in their several instances." The writer had an opportunity of witnessing such an effect derived from this source so lately as 1831.

This extreme impressibility of the nervous system in pregnant women teaches us the necessity for preventing them from witnessing scenes of acute suffering or distress, such as those of sickness, especially convulsive affections, or the agonies of a death-bed; they should not be present when others are in labour, which sometimes greatly terrifies the timid, and even those who pass with courage through the same process themselves. They should not expose themselves to infectious disorders, which, if they should happen to catch, (though they seem less liable to do so than others,) they will,

[1] Epist. xlviii. art. 18, 19. vol. ii. p. 721, Alexander's translation.
[2] Chap. iv. v. 19, 20.
[3] Synopsis, p. 224.
[4] Ibid, 4th ed. p. 227. 1826.
[5] Practical Observations, part i. p. 192.

at least, be very likely to miscarry; and even though they may not be themselves susceptible of the disease, the unborn infant may suffer from it, as has been proved with regard to small-pox.[1] Neither should they be permitted, if possible, to see disgusting objects, for although no injury may be thereby done to the child, their minds are apt to remain much troubled with anticipations of some deformity or disfigurement likely to ensue. Now in reference to this matter, but without meaning in any way to advocate or countenance either the indiscriminate doctrine of effects produced by the mother's imagination, or the ridiculously absurd fabrications by which it has been attempted to maintain it, I cannot help thinking it quite consistent with reason, and the present state of our knowledge, to believe that a very powerful impression on the mother's mind or nervous system may injuriously affect the fœtus, and it will at least be always safe and prudent to act on such a presumption; for "although," to use the words of Morgagni,[2] "I do not approve these things, (that is, the absurd stories,) there are cases wherein it seems to me to be very hard to depart totally and altogether from that opinion which is common to the greatest men."[3] In a case already quoted from this celebrated writer, a mental impression was quickly followed by the death of the child; and if such an influence can thus destroy its life, it is surely not unreasonable to admit, that it may have the power of modifying organisation.[4] An instance of this kind occurred under my own observation about two years ago, so remarkable, that I trust I shall be excused if I think it presents something more than a mere, though striking coincidence.

A lady, pregnant for the first time, to whom I recommended frequent exercise in the open air, declined going out as often as was thought necessary, assigning as her reason, that she was afraid of seeing a man whose appearance had greatly shocked and disgusted her; he used to crawl along the flag-way on his hands and knees, with his feet turned up behind him, which latter were malformed and imperfect, appearing as if they had been cut off at the instep, and he exhibited them thus, and uncovered, in order to excite commiseration. I afterwards attended this lady in her lying-in, and her child, which was born a month before its time, and lived

[1] See cases by Jenner, Med. Chir. Trans. vol. i. p. 269; a very remarkable one by Mead, in which "a certain woman who had formerly had the small-pox, and was now near her reckoning, attended her husband in the distemper. She went her full time, and was delivered of a dead child. It may be needless to observe that she did not catch it on this occasion, but the dead body of the infant was a horrid sight, being all over covered with the pustules; a manifest sign that it died of the disease before it was brought into the world." Works, edit. 1767, p. 253.

[2] Epist. xlviii. art. 54.

[3] He refers to Boerhaave, Prælect. ad Instit. § 694. and to Van Swieten.

[4] A celebrated writer of the present day, Esquirol, is led from observation and experience to refer one of the species of congenital predisposition to insanity, to the impression of terror on the mind of the mother while pregnant.

but a few minutes, although in every other respect perfect, had the feet malformed and defective, precisely in the same way as those of the cripple who had alarmed her, and whom I had often seen. Now here was an obvious and recognised object making a powerful impression of a disagreeable kind, complained of at the time, and followed by an effect in perfect correspondence with the previous cause, there being between the two a similarity so perfect that, with the distinguished author above referred to, I "will not easily suppose that chance could have been so ingenious, if I may be allowed to speak thus, and so exact an imitator,"[1] and though I must acknowledge, in the words of Van Swieten, "that I do not understand the connection of the cause acting upon the mother with the effect observed in the fœtus,"[2] I also agree with him, that it must not therefore be denied that such a thing has really happened, and while I reject totally those relations which can attract attention only by the monstrous absurdities with which they overtax our credulity, I would not wish to adopt the philosophy of those "multi medici" complained of by Galen,[3] "qui rerum, quæ manifeste conspiciuntur causas reddere nequeuntes eas esse omnino negant," for were such a rule of judging to be adopted, there would indeed "be too many things in physics that I must deny, if they were to be denied, because I do not understand the manner in which they are brought about."[4] Many of the acknowledged and demonstrable phenomena connected with generation should thus be rejected as untrue, because inexplicable; and among others, one may be selected which, from reasoning alone, would appear far more incredible than could be any effect produced on the fœtus in utero by a cause acting on the mother during its gestation. I allude to the well-known fact, that when the Earl of Morton's Arabian mare was covered by the quagga, not only did the mule so begotten partake of the characters of the sire, but when the mare was subsequently submitted to an Arabian stallion, by whom she had three foals at different times, the first two continued to exhibit some of the distinctive peculiarities of the quagga, conjoined with the characters of the Arabian breed.[5] Mr. Mayo mentions that a similar occurrence was observed by Mr. Giles in a litter of pigs, which resembled in colour a former litter by a wild boar.[6] Such occurrences appear forcibly to suggest a question, the correct solution of which would be of immense importance in the history and treatment of disease. Is it possible that a morbid taint, such as that of syphilis, for instance, having been once communicated to the system of the female, may influence several ova, and so continue to manifest itself in the offspring of subsequent conceptions, when impregnation has been effected by a perfectly

[1] Epist. xlviii. art. 51. Vide epist. lxvii. art. 16.
[2] Comm sect. 1075.
[3] De locis affectis, lib. v. cap. iii.
[4] Morgagni.
[5] Vide Philos. Trans. 1821, p. 21.
[6] Outlines of Physiology, 3d ed. p. 376.

healthy man, and the system of the mother appearing to be at the time, and for a considerable period previously, quite free from the disease. My belief is certainly in favour of the affirmative.

The irritation of the nervous system is in some most obviously perceived in the change induced in the moral temperament,[1] rendering the individual depressed and despondent, or perhaps she who was naturally placid and sweet-tempered becomes peevish, irritable, and capricious to a degree as distressing to herself as it is disagreeable to others; yet over this she has little control, and therefore much allowance must be made for such waywardness, which, instead of exciting opposition, resentment, or reproach, should claim our utmost indulgence, and commisseration, and our best endeavours to comfort, sooth, and cheer. A lady of rank and very superior acquirements told me lately, that for the first two or three months of her pregnancies she became so irritable that, to use her own words, she was a perfect nuisance in her house, and was so painfully conscious of it herself, that she would sometimes remain in bed all day, or confine herself to her room to avoid displaying her irritability to the annoyance of others. I have known the effect produced to be the reverse of this, and a decided amelioration take place in the temper, as we sometimes also see happen in the exercise of the bodily functions during pregnancy. A gentleman lately informed me, that being afflicted with a stepmother naturally more disposed to practise the *fortiter in re* than to adopt the *suaviter in modo*, he and all the household had learned from experience to hail with joyful anticipations the lady's pregnancy as a period when clouds and storms were immediately exchanged for sunshine and quietness.

Some suffer most from this irritability depriving them of sleep night after night, especially if they have not guarded against feverishness by proper attention to the state of the bowels, or sleep in rooms too warm or insufficiently ventilated; and yet it is singular how little they appear to suffer from this loss of rest, seeming really as much refreshed and recruited by the short snatches of sleep which they obtain, as they would at other times when enjoying unbroken repose.

I suppose many have noticed a curious fact connected with the state of mind in pregnant women when their bodily health is at the same time good, namely, that however depressed or dispirited with gloomy forebodings they may have felt in the early part of their pregnancy, they in general gradually resume their natural cheerfulness as gestation advances, and a short time before labour actually commences, often feel their spirits rise, and their bodily activity increase to a degree that they had not enjoyed for months before. I have known instances in which this took place so regu-

[1] "Usque adeo nempe fœcundat virtus a mare in coitu proveniens, ut integram fœminam tam *moribus animi* quam corporis vigore immutet." Harvey, 4to. ed. p. 593.

larly and distinctly in successive pregnancies, that the patients were able from its occurrence to anticipate and announce the near approach of their labour. This must strike us as a wise and beautiful arrangement by which, on the eve of suffering, the mind rises with a spring to meet the trial with cheerfulness and fortitude, which experience proves so materially to contribute to a happy result.

Occasionally, however, the depression assumes a more serious aspect, and the woman is constantly under the influence of a settled and gloomy anticipation of evil, sometimes accompanied with that sort of apathetic indifference which makes her careless of every object that ought naturally to awaken an interest in her feelings; a state which we sometimes observe in fever and other severe disorders, in which it is justly considered a most unfavourable symptom. When this occurs in pregnancy it will generally be found accompanied by very evident derangements in bodily health; a dull heaviness or aching of the head, a loaded tongue with bitter taste in the mouth constant nausea, costiveness, and a foul state of the alvine discharges, with not unfrequently a bilious tinge in the skin, and other symptoms indicating hepatic derangement, together with a quick pulse and a dry hot skin, constitute the group of symptoms likely to be present, and which urgently demand attention for their removal before the time of labour, otherwise serious consequences are to be apprehended. Sometimes this state appears to depend on some peculiar condition of the brain, the nature of which we probably cannot appreciate, and which our treatment will but too often fail to correct; in one strongly-marked instance of this kind which was some time ago under my care, the lady became maniacal on the fifth day after delivery, and continued deranged for many months.

Reasoning by analogy from such considerations as those we have just been engaged in, we would be led to expect as probable what experience confirms as certain, that occasionally the cerebral disturbance during pregnancy, which in most instances only shows itself in unevenness of spirits or irritability of manner or temper, amounts in some to absolute disorder in the intellectual faculties, especially in habits naturally very excitable, or where there is an hereditary predisposition. "If we consider," says Dr. Prichard,[1] "the frequent changes or disturbances occurring in the balance of the circulation from the varying and quickly succeeding processes which are carried on in the system during and soon after the periods of pregnancy and childbirth, we shall be at no loss to discover circumstances under which a susceptible constitution is likely to suffer. The conversions or successive changes in the temporary local determinations of blood which the constitution under such circumstances sustains and requires, appear sufficiently to account for the morbid susceptibility of the brain;" and with regard to congenital

[1] Treatise on Insanity, p. 312.

predisposition, Esquirol has furnished us with a result of his experience, which bears strongly on this part of our subject; he affirms, that many facts have occurred, within the sphere of his information, proving that a strong congenital predisposition to madness has arisen from some accidental fright sustained by the mother during pregnancy. Many cases of this discription are said to have occurred during the period of the Revolution.[1] In some this sensorial agitation may be confined to the more strongly marked forms of hysteria, or only exhibit itself in those unaccountable "phantasies, called longings, which, says Dr. Burrows, "are decided perversions or aberrations of the judgment, though perhaps the simplest modifications of intellectual derangement,"[2] but others are truly and even violently maniacal. I have on another occasion[3] noticed a case where mania occurred in eight successive[4] pregnancies, and another in which the woman was three times similarly affected soon after conception, and remained deranged until within a short time of her labour, when she became sane, and continued so until the recurrence of pregnancy. Goubelly relates a case of an opposite kind, in which the lady was of sound mind only during her pregnancies, but was then deficient in memory, of which also Mrs. Durant presented a remarkable instance. [5]

Should there unfortunately happen to be superadded to physical predisposition the influence of some moral evil, some absorbing mental trouble, the tendency to this unhappy malady is much increased; in the opinion of Esquirol, the moral causes affecting pregnant women are in relation to the physical as four to one,[6] and of ninety-two cases of puerperal mania reported by him, twenty-nine were in unmarried women. How deplorable then must be the condition of the mind in a woman, who, led astray by the profligate from virtue's paths of pleasantness and peace, and then abandoned, is compelled to consider her pregnancy as a curse instead of a blessing, and has, in addition to the ordinary troubles of that state, to bear up against the agony of disappointed hopes, of affections misplaced and cruelly abused, to endure the present scorn of society and the anticipation of a still increasing shame for which she is to find no "sweet oblivious antidote" of power to "pluck from the memory a rooted sorrow," or "raze out the written troubles of the brain." How often has such a state of mind been followed by convulsions, or ending in insanity

[1] Treatise on Insanity, p. 161.

[2] Commentaries on Insanity, p. 147

[3] In a paper on the occurrence of mental incoherence during natural labour, in the *Dublin Medical Journal*, vol. v. p. 52.

[4] "Some are insane on every pregnancy or lying-in, others only occasionally." Burrows, pp. 364. 378.

[5] Durant's Memoirs of an only Son, vol. i. p. 147.

[6] Vide Burrows, p. 379.

has armed with the weapon of suicide[1] the once gentle hand of her, who, to use the words of W. Hunter,[2] "might have been an affectionate and faithful wife, a virtuous and honoured mother, through a long and happy life; and probably that very reflection raised the last pang of despair which hurried her into eternity." I have myself seen instances of such miserable results, and one of them very lately.

With respect to hysteria, although in its ordinary or slighter forms not perhaps properly deserving the name of mental disturbance, its more aggravated conditions are so closely allied thereto, that it would be extremely difficult to draw the line of distinction. "Cases of this kind," says Dr. Conolly,[3] "approach near to insanity; and, indeed, a mind subject to the violent agitations incidental to the hysteric constitution, cannot be considered as perfectly sane;" a state of which Sydenham[4] has given so admirable and graphic a description, in which he says the patients "observe no mean in any thing, and are constant only to inconstancy;" "so unsettled is their mind that they never are at rest." Of one fact at least my own experience and that of others[5] afford sufficient evidence, that when the aggravated form of hysteria prevails throughout pregnancy, puerperal mania is much to be apprehended.

I wish here to observe, that in noticing some of the more remarkable phenomena occasionally displayed during pregnancy, it is not intended to imply that such are the usual concomitants of that condition; on the contrary most of them are to be considered as rare occurrences, some of them remarkably so, and all as exceptions to the general rule, but for this very reason deserving of particular notice, as probably connected with a morbid state of the system either absolutely existing at the time, (though perhaps not otherwise clearly appreciable,) or about to be developed; as in the case of Mrs. Durant, to be related hereafter, whose memory of the whole time of her pregnancy was a complete void; my object being to point out forcibly what experience seems to have fully established, that during pregnancy the system is in a state of unusual susceptibility, the activity of both the nervous and circulating systems being at that time greatly exalted, by which the female is rendered much more liable to be injuriously affected even by ordinary causes, and still more so by any of a more impressive kind; and that knowing this to be the case, we may be on the watch to counteract the influence of such a predisposition, and so prevent the accession of danger, by a proper regulation of the patient's habits, with regard to exercise, food, occupations, and attention to the state of the digestive organs; or if unfavourable

[1] Vide Trans. of Soc. for improvement of Med. and Chirurg. Knowledge, vol. ii. p. 63; see also Philos. Trans. 1817.
[2] Med. Obs. and Enquiries, vol. vi. p. 270.
[3] Cyclopædia Pract. Med. vol. ii. p. 563.
[4] Swan's Translation, ed. 1769, p. 414.
[5] Vide Burrows on Insanity, p. 378

symptoms have already made their appearance, that by a more correct appreciation of their origin, we may be enabled to adopt the treatment best suited to the circumstances. Neither was it my intention to represent pregnancy as a state of disease, but as one in which a great temporary alteration takes place in the condition of particular functions, not however of such a kind or to such a degree as could with propriety be considered as constituting disease; on the contrary, as already pointed out, several of the functional derangements naturally accompanying that condition, are subservient to new but healthy actions necessarily associated with its favourable progress; thus an increased activity in the circulation is required at a time when there is proceeding a rapid formation of new parts, and the vessels have to elaborate the materials both of structure and nutrition for a new being, and to exhale for its protection the liquor amnii; and even when this latter action of the exhalants is exerted in situations where it apparently assumes a morbid character, the result is often found decidedly beneficial, and relief of some more serious ailment quickly follows, as the removal of undue determination to the head, lungs, or uterus, on the occurrence of œdema of the feet and legs, which, as Denman[1] observes, may in some cases "be esteemed as a critical deposition upon the inferior extremities of something superfluous or injurious to the constitution." So on the other hand we very frequently find that the sudden or premature cessation of some of those sympathetic disorders, as for instance of the sickness of the stomach, is but too certain an indication that the healthy action of pregnancy has been arrested and that abortion is likely to ensue; hence, to use the words of the excellent writer just quoted, in the truth of which I concur, "It is a popular observation, confirmed by experience, that those women are less subject to abortion, and ultimately fare better, who have such symptoms as generally attend pregnancy, than those who are exempt from them."[2] And it may be added, that if with a few pregnancy has deserved the name of a nine-months' malady, fully an equal number suffer little or no inconvenience, and with some it is a period of decided improvement in health; moreover, it appears from experience that women who bear children generally enjoy more even health, and are less disposed to disease, than those who lead a life of celibacy, or who, having married, remain unfruitful. Indeed, I think we have sufficient evidence to justify the belief that pregnancy acts in a great degree as a protection against the reception of disease, and apparently on the common principle that, during the continuance of any one very active operation in the system, it is thereby rendered less liable to be invaded or acted on by another; thus it has been observed, that during epidemics of different kinds, a much smaller proportion of pregnant women have been attacked than of others; and when women who have been

[1] Introduction to Midwifery, p. 241.
[2] Ibid, p. 212.

labouring under certain forms of disease happen to conceive, the morbid affection previously existing is either greatly mitigated, checked, or even altogether suspended for a time, as has been frequently observed in persons affected with phthisis. I had a patient under my care some years ago affected with white swelling of the elbow-joint, which had gone to a great length, and was very little benefited by treatment, when all of a sudden a very rapid amendment was observed; on questioning the lady, I found that she had reason to think herself about six weeks pregnant, which was the fact; from that time the cure advanced uninterruptedly, so that before the end of her gestation the arm was perfectly well, and has continued so ever since.

At the same time it is not to be forgotten that occasionally the natural sympathetic affections may become excessive, and be very injurious or even destructive of life, as, for instance, when total exhaustion and death have resulted from incessant vomiting, or when the violence of that act has caused the rupture of internal organs, as the uterus or liver; and moreover the influence of pregnancy in modifying or preventing other active processes proceeding in the system at the same time, is sometimes detrimental to the female, as when in cases of fractures the formation of callus and the reunion of the bone is prevented, or at least retarded, until after delivery,[1] and probably to the same cause it may be ascribed that the cure of syphilis and of paralytic affections is rendered imperfect during that condition.

There is a fact connected with the history of pregnancy when complicated with disease, which has always appeared to me one of great interest; when a pregnant woman labours under a malady which is to end fatally before the completion of her gestation, it almost invariably happens that a short time, generally a day or two, before her death, the uterine action is established and the child born. I have so frequently observed this occurrence, that I cannot but regard it as a pre-ordained arrangement to prevent the unborn child from participating in the decease of the mother.

There is a simulation of disease which occasionally accompanies pregnancy, and depends apparently on disturbance of the nervous influence, which sometimes very remarkably affects the functions of some of the organs of the external senses, in which no appreciable organic change can be at the time discovered, and that none such does really take place seems sufficiently evident from the fact that the affection lasts only during gestation. Thus instances of temporary amaurosis induced by pregnancy are by no means un-

[1] See cases by Mr. Wardrop, Med. Chir. Trans. vol. v. p. 359; and Mr. Alanson, Med. Obs. and Enq. vol. iv. p. 410. Meckel, after enumerating different other causes, says, "enfin la concentration de l'activité plastique sur un autre organe; c'est cette dernière circonstance qui fait que les fractures ne guérissent point pendant la grossesse et l'allaitment, quoiqu'il n'en soit cependant pas toujours ainsi."—Manuel d'Anatomie, tom. i. p. 337.

common.[1] I lately saw a lady thus affected; she could see certain objects distinctly, as a line drawn on paper, others appeared confused, and some she could hardly discern at all; occasionally she imagined she saw objects which were not present, as a person crossing the room, or flower-pots, or bunches of flowers on her table, when nothing of the sort was there. Salmutius[2] relates a case in which a lady became blind every time she was pregnant, and recovered her sight as soon as she lay in. Beer[3] saw a young Jewess, who at the very beginning of her first three pregnancies, which followed each other quickly, regularly became amaurotic, and continued blind till after delivery, but on the third occasion she did not recover her sight. Chambon ascribes these affections to plethora, but such an explanation is scarcely consistent with the occurrence of amaurosis from protracted or undue lactation, when the constitution is in a state of great debility and exhaustion; two well-marked instances of which I saw lately in two sisters, who quickly recovered their sight by weaning their children. Gardien notices this part of our subject fully,[4] and mentions a variety of affections which I have not met with. Dr. Bennewitz has detailed the particulars of a case in which a young woman was in three successive pregnancies affected with diabetes mellitus, which each time completely ceased on delivery, but again returned when she became pregnant.[5]

In conclusion, I fear that if we take a review of former times, a conviction will be forced upon us not very flattering to our fancied superiority above our ancestors in our watchful care of our women when pregnant, or in the legal provisions enacted for their protection and comfort, in both of which respects, the laws and customs of the earliest periods seem to have greatly excelled both in justice and humanity those which even at this day prevail amongst us. The Jewish law[6] decreed that if two men quarreling injured a pregnant woman so as to make her miscarry, she not suffering in health thereby, they should be liable to punishment at the discretion of her husband, and to such fine as the judges should determine; if she sustained bodily harm, then the law of retaliation was to be put in force; but if she lost her life the punishment of death was awarded; and although the Jews were in general strict observers of the ordinances of the Mosaic law, they allowed pregnant women the use of forbidden meats lest the child might suffer from their longings. The Athenians spared the life of the murderer who took refuge under the roof of a woman with child, and by the kings of Persia they were each presented with two pieces of gold. The Roman laws allowed them the same privileges as did those of

[1] Vide Mason Good, Study of Med. vol. iv. p. 247. Cooper's Surg. Dict. art. Amaurosis.
[2] Cent. iii. obs. 27. [3] Lehre von den Augerkrankheiten.
[4] Traité des Accouchemens, vol. i. p. 76, and vol. ii. p. 487.
[5] Osann's Clinical Report for 1823. Edinb. Med. Journ. vol. xxx. p. 217.
[6] Exodus, chap. xxi. ver. 22, et seq.

France, in the code of which country, at the close of the last century, an enactment existed[1] which forbade that a pregnant woman should be brought to trial; the humanity and propriety of which we cannot too much admire. Although not aware of the grounds on which such a prohibition was framed, I can see two excellent reasons for its adoption; first, lest the mental disturbance arising from the state of the nervous system should in any degree render the accused less capable of defending herself; and secondly, lest the agitation and terror excited by her trial might have an injurious effect upon her offspring; and such, I find, is the light in which the matter is viewed by Raige Delorme.[2] By the British law no such merciful exemption is provided: a pregnant woman may be tried for her life, and if found guilty, executed, and with her, her guiltless offspring, except it can be made appear that she is not only pregnant but quick with child. When examined as witnesses and under other circumstances, pregnant women frequently refuse to take an oath, and I believe their objection is generally allowed in unimportant matters, but of the grounds of this usage I am not aware.

CHAPTER II.

INVESTIGATION OF THE SIGNS OF PREGNANCY—LEGAL AND SOCIAL RELATIONS—DIFFERENT SOURCES OF EVIDENCES OR PROOFS OF THAT STATE—CLASSIFICATION OF SIGNS.

"Nunquam forte magis periclitatur fama medici, quam ubi agitur de graviditate determinanda: undique fraudes, undique sæpe insidiæ, struuntur incautis." "Omnes enim, qui de graviditatis signis scripserunt, quamvis longo artis obstetriciæ usu celebres fuerint, unanimi ore fatentur, primis præcipue mensibus signa graviditatis satis incerta esse," was the conclusion to which Van Swieten came a hundred years ago; and now that we have had the experience of another century to guide us, I believe there will be found few prepared to refuse their assent to the truth of his assertion, which expresses the opinion, not of its author only, but of all who, before or since his time, have well considered the subject, and candidly stated the result of their experience. Still I am convinced that many of the errors that have been committed both in theory and practice, have arisen far less from the acknowledged difficulty of the investigation than from the want of proper information and the careless way in which examinations are conducted; for although we shall occasionally meet with cases so complicated that the best exertions of our judgment, assisted by experience and

[1] See Foderé, Méd. Leg. tom. i. p. 428 et seq.
[2] Dict. de Méd. tom. x. p. 449.

the possession of the requisite dexterity in the different modes of examination, will still leave us unable to do more than arrive at a result so involved in doubt as to forbid our attempting to hazard any thing approaching to a decisive opinion, such cases are infinitely less frequent of occurrence than one would be led to conclude, who judged from the number of mistakes made on the subject; indeed such extreme difficulty can in general only be encountered during the early months, and even then an examination conducted with sufficient attention and care will always enable the practitioner to avoid giving an erroneous opinion; and where blunders have been committed at more advanced periods, they have always, in my opinion, been caused by ignorance, want of care, prepossession, or a perverse and short-sighted reluctance to acknowledge frankly the inability to decide positively under circumstances of unusual obscurity: which avowal, exclusive of the imperative necessity of acting honestly, is surely much less humiliating as well as less likely to detract from our reputation, than to venture precipitately on an opinion for which we must know we have not sufficient grounds, or through a vain affectation of superior discernment, to pretend to an accuracy of knowledge which the event is to belie.

At all events one thing is certain; few questions in medicine, whether considered in a merely professional point of view, or in reference to their relations with criminal or civil law, impose on the medical examiner a more delicate duty, or a more trying responsibility, than the determination of the existence or absence of pregnancy; placed before him, as the question generally is, under circumstances by which all its natural difficulties are increased an hundred-fold. It usually happens in such cases that he cannot rely on a single statement made by the individual who may be the subject of examination; but, on the contrary, he must be prepared for every species of falsehood and misrepresentation. And yet on the correctness of his opinion frequently depend the claim to fair fame, virtue, and honour;—the succession to property, and the rights of legitimacy;—the judicious treatment of disease;—and, in criminal cases, the condemnation or acquittal of one arraigned for a capital offence, or the preservation or destruction of the unborn innocent. How deeply anxious then should we be to possess ourselves of such information on the subject as may enable us to free the innocent from aspersion, or to detect the vicious, and when called upon to assist the right administration of the law, we may be competent to give an opinion, which, while it promotes and satisfies the great ends of justice, shall also be consistent with the milder blessings of humanity and mercy.

The instances which present themselves are unfortunately but too frequent, in which the unmarried female, either yielding to the influence of passion, or made the reluctant victim of the unprincipled seducer, and becoming pregnant, an investigation as to her real state is sought for, in the hope of inducing marriage, or perhaps for the purpose of influencing a jury in the assessment of damages.

An attempt may be made to *conceal* pregnancy by the unmarried, or even by the married under certain circumstances; as in the case of a wife's separation from her husband or his casual absence; in order to avoid disgrace in society, or to enable her with impunity to destroy her offspring.

The pertinacity and apparent innocence with which pregnancy is denied under such circumstances would be quite incredible, and almost certainly mislead us were we not taught scepticism from experience having so often disclosed to us that in the indignant burst of offended chastity and the deep asseveration of unspotted purity we were after all to recognise the solemn protestation of a lie. I was once called to see an unmarried patient whom I found in labour, and even when the feet of the child were beyond the external parts she resolutely denied that she was pregnant; and afterwards persisted that she never had incurred the risk of impregnation, though it was ascertained that she had lain-in twice before. A medical friend of mine was called hastily to the house of a patient to see a young woman who being taken very ill with a colic, as she said, had retired to bed, and was soon afterwards delivered of a child, whose cries disclosed the truth; when questioned, she requested the child might be taken away as it was a trick played on her by some of her fellow servants, who, wishing to injure her, had procured a child and put it into her bed while she was asleep: the cord was still undivided and the placenta retained in utero. Castroverde has recently published the particulars of a case in which both husband and wife, persons of very high rank, acknowledged to him that they had endeavoured to lead him astray about the lady's pregnancy, in the hope that he would order remedies for the accompanying amenorrhœa, which would cause abortion: their reason for thus conspiring to deceive was, that the lady had previously had a very dangerous labour, and was afraid of encountering another, having been told that if she was to be delivered again it would almost certainly cost her her life; she, however, did not miscarry, and had a favourable and easy labour.[1]

On the other hand, pregnancy may be *feigned* in order to gratify the wishes of a husband or relatives, to extort money, to compel marriage, to deprive the lawful heir of his just rights of succession, or to delay the execution of the sentence of death.

By the law of this country, a woman capitally convicted may plead pregnancy in bar of execution, and medical men are appointed to determine the question whether the culprit is really with child or not; and if she is, whether she be *quick with child*, for pregnancy alone will not save her. This rule, we may observe in passing, is one of the most monstrous and barbarous features of our penal code. How infinitely superior both in morals and in mercy are the laws of France[2] and Scotland,[3] which ordain that if

[1] See Journal des Connaissances Médicales, Juin 1835.
[2] Code Pénal, art. 27.
[3] See Alison's Practice of the Criminal Law of Scotland, p. 654.

a woman be proved to be pregnant, whether she has quickened or not, she shall not be executed until after her delivery: in the latter country she is entitled to have even her sentence delayed, and in France the privilege formerly allowed under such circumstances was still greater. In 1795[1] a law was passed which ordained that no woman accused of a capital crime should be *brought to trial* until it was properly ascertained *that she was not pregnant*;[2] and in conformity with this, several decisions were reversed where it appeared that the female had not been properly examined; and in more than one instance the sentence of death was annulled, because it was discovered that the woman was pregnant at the time of being put upon her trial.[3]

Connected with such investigations, some very melancholy mistakes, have occurred, by which the lives of unborn infants have been sacrificed. Riolan relates the history of a woman named Genevieve Supplice, who, after being hanged for robbery, was publicly dissected by him at the school of medicine, and was found pregnant of a child of five months, contrary to the opinion of the surgeons and midwives who had examined her.[4] Mauriceau also mentions having seen at Paris, in 1666, a miserable example of this kind in a woman who was hanged and afterwards publicly dissected: she was found to be pregnant four months, notwithstanding the report of the persons who had visited and examined her by order of the judge before her execution, and pronounced that she was not pregnant, *being deceived by the fact of her continuing to menstruate.* This matter caused a great sensation of disgust and horror, and was reported to the king and his court, and in consequence a severe censure was passed on the persons who, by their ignorance, had caused the untimely execution of the unfortunate woman, with whom had perished also her infant, innocent of its mother's crime.[5]

If we fancy that the progress of knowledge and modern improvement exclude the idea of such an error at the present day, we shall soon be undeceived; and for one equally great, though of an opposite kind, we need only refer to the account of the Cæsarean operation performed at Berlin, in 1828, by a celebrated surgeon, and in presence of several obstetric professors, many of whom examined the woman, who appeared healthy and about twenty-two years of age, but was pronounced to be carrying an extra-uterine fœtus, the movements of which were supposed to have been felt by some of the professors, and the woman herself thought so too; one only of those present considered the symptoms not sufficiently clear to justify such an operation, which, however, was persisted in and performed; but *no fœtus was to be found, nor tumour, nor en-*

[1] Twenty-third Germinal, year 3.
[2] See cases in the chapter on Quickening.
[3] Foderé, Méd. Lég. tom. i. p. 428 et seq.
[4] Anthropog. lib. 6, ch. 2.
[5] Maladies des Femmes Grossess, tom. i. p. 71, 2.

largement of any viscus.[1] Or let us turn to the fact related by Capuron,[2] of which he was an eye-witness. A woman was admitted into La Charité, declaring herself dropsical. She was examined by Corvisart, who thought he felt a little fœtus towards the left iliac region, and pronounced the case to be one of encysted dropsy and extra-uterine gestation. Baudalocque was now called in, examined her, and declared the appearance of pregnancy was caused by an enormous scirrhus of the uterus: two or three weeks afterwards the woman gave birth naturally to a very large, vigorous, and healthy child.

A proceeding may also take place at common law, "where a widow is suspected to feign herself with child in order to produce a suppositious heir to the estate, and defraud the lawful heir. In such case the heir presumptive may have a writ *de ventre inspiciendo*, to examine if she be with child or not, and if she be, to keep her under proper restraint until she is delivered. But if the widow be, upon due examination, found not pregnant, the presumptive heir shall be admitted to the inheritance, though liable to lose it again on the birth of a child within forty weeks from the death of the husband."[3]

A celebrated case of this kind, which attracted great attention, occurred in the family of Sir Francis Willoughby, who died seized of a large inheritance. He left five daughters, (one of whom was married to Percival Willoughby,) but not any son. His widow at the time of his death stated that she was with child by him. This declaration was evidently one of great moment to the daughters, since if a son should be born, all the five sisters would thereby lose the inheritance descended to them. Percival Willoughby prayed for a writ *de ventre inspiciendo*, to have the widow examined, and the sheriff of London was accordingly directed to have it done. He returned that she was twenty weeks gone with child, and that within twenty weeks *fuit paritura*. "Whereupon another writ issued out of the common pleas, commanding the sheriff safely to keep her in such a house, and that the door should be well guarded; and that every day he should cause her to be viewed by some of the women named in the writ, (wherein ten were named,) and when she should be delivered, that some of them should be with her to view her birth, whether it be a male or female, to the intent there should not beany falsity. And upon this writ the sheriff returned, that accordingly he had caused her to be so kept, and that on such a day she was delivered of a daughter."[4]

This is a mode of proceeding seldom resorted to, but is still recognised by our law, and was had recourse to so lately as last

[1] Lond. Med. Gazette, vol. ii. for 1828, p. 380.
[2] Principes, &c. des Accouch. p. 52, Brussels Ed.
[3] Blackstone, vol. iv. p. 394, 5.
[4] Croke's Elizabeth, p. 566. See also in the matter of Martha Brown *exparte* Wallap in Brown's Chancery Cases, vol. iv. p. 90: and *exparte* Aiscough, Peere Williams's Reports, vol. ii. p. 591.

year in the English court of chancery, in the case of Marston and Fox, of which the following were the facts:—Mr. Fox, of Uttoxeter, aged about sixty, died in May, 1835, leaving a widow to whom he had not been married much more than six weeks. The widow announced herself to be with child, and entered a *caveat* to the probate of the presumptive legatee, Mr. Marston; whereupon the latter immediately applied for a writ *de ventre inspiciendo* to ascertain the lady's pregnancy. The lady, however, became alarmed by what she heard about the nature of the examination,[1] and petitioned the court not to grant the writ, which it was argued was not called for, as it presumed fraud on the part of the female; but this was overruled by the vice-chancellor, who held that suspicion of fraud was not necessary, and that the mere assertion of pregnancy was sufficient to support the application. Mr. Marston did not insist on a compliance with the forms of the ancient writ, but merely that the lady should be examined by professional persons selected by him; but as Mrs. Fox would not consent to this, the conditions prescribed by the old law were held to be the only alternative. The widow put in a number of affidavits to avert the law process, and stated that in consequence of the recent death of her husband, and many other circumstances which had subsequently taken place, her mind was in such a state as to render her unable to undergo the examination required by the writ: the medical attendant of the family disposed that he had examined her, and believed her to be pregnant, and further added his opinion that the kind of examination prescribed by law would be likely to do injury to her and the child; but that, if two months were allowed to elapse the doubt and danger would be removed. Other witnesses deposed that Mrs. Fox was delicate woman, and a person of modesty. Under these circumstances the vice-chancellor, who said that from reading all the affidavits he was satisfied that there was strong ground for believing the lady to be with child, thought it best to let the matter stand over for a month, by which time further proceedings might be unnecessary. At the end of that time, however, the parties not being likely to agree, and two affidavits from medical men being put in to the effect that Mrs. Fox was now in the fifth month of her pregnancy, which, however, did not satisfy the counsel on the opposite side, the court made a final arrangement. The vice-chancellor said that there was no doubt the applicant had a *right* to the writ; but that the lady, on the other hand, did not deserve to be treated with the severity of the ancient process. He, therefore,

[1] Which certainly must be as formidable and revolting to the feelings of the female as it is repugnant to our notions of propriety and decency: the ancient writ runs thus—"Tibi præcipimus quod assumptis tecum *duodecim discretis et legalibus militibus* et duodecim discretis et legalibus mulieribus de comitatu tuo, in propriâ personâ tuâ accedas ad præfatam R. et eam *coram præfatis militibus* videri et diligenter examinari et tractari facias per ubera et ventrem in omnibus modis quibus melius certiorari poteris utrum impregnata sit necne," &c. &c.—Register Brevium, 227.

adopted a middle course, and left it to the master to appoint two matrons, who, with a medical man on each side, should visit Mrs. Fox once a fortnight, giving her two days' notice previous to each visit.[1] The lady was afterwards delivered of a son and heir.

A case of nearly a similar kind occurred in this city about three years ago; the lady had been about four months married to an elderly, and, as it was asserted, impotent man, when he died, having, before his marriage, made an arrangement of his affairs in favour of his son by a former wife: on his death the son proposed to take possession of the property at once, to which the widow objected, saying that she was pregnant, and had a claim in right of her child. It was agreed between the parties that the existence of pregnancy should be determined by reference to medical men chosen on each side, and the writer was retained by the heir; but before any thing further was done the lady contrived to effect a sale of the greater part of the property, and appropriating the proceeds to her own use, disappeared, leaving the parties concerned to settle the matter as they best might. The event proved that she was not pregnant.[2]

There is another case where the court has interfered on proof of the existence of pregnancy being brought before it, and that is, where a female in this situation is imprisoned. Thus in the case of Elizabeth Slymbridge,[3] "upon suggestion that she had been imprisoned for divers weeks and was with child, and would be in danger of death if she should not be enlarged," Sir Edward Coke, the chief justice, admitted her to bail to prevent the peril of death to her and her infant, and in giving his opinion he quotes a similar case which happened in the 40th of Edward III. The editor remarks that these cases are cited as extraordinary instances. The last case is mentioned in Coke upon Littleton, 289 *a*. The record states, "Quia eadem Elena pregnans fuit, et in periculo mortis, ipsa dimittitur per manucaptionem ad habendum corpus," &c.

When proceeding to an investigation of this kind, we must recollect that the signs or proofs of pregnancy are to be collected from various and widely different sources, and moreover, that of some of them we can have no evidence except from the report made to us, while of others we can judge by the changes existing before us, and cognisable by our senses. The following are the chief of these signs, and of the sources from which evidence is to be collected:—

1. Certain affections of the constitution induced by pregnancy, which are the result of the new action which has commenced in the uterus; such as suppression of the menses, generally increased irritability of the nervous system, evinced in capriciousness of

[1] The above details are extracted from a very well written article in the Lond. Med. Gazette for Aug 15, 1835, p. 697, and the announcement of the lady's delivery appeared in the same journal for Nov. 7, p. 191.

[2] See Schmitt's cases of doubtful pregnancy, first division, cases 32 and 33.

[3] Croke's James, p. 358.

temper, or perhaps in the production of erratic pains, as in the face and teeth, greater activity in the circulating system, and especially in the exhalants, giving rise to œdema and other forms of dropsical effusions; alterations in the countenance from absorption of the fat, &c.

2. In consequence of the irritation induced in the uterus, there is a train of sympathies excited in other organs, affecting either their physical constitution or their peculiar functions: such, for instance, are the changes produced in the breasts by which their size is increased, with tingling pains, the areola formed, and milk secreted; the stomach is rendered irritable; vomiting ensues; the appetite becomes variable and capricious, and sometimes the salivary apparatus participates so decidedly in the irritation that complete salivation takes place.

3. The altered condition of the uterus itself, which, increasing in size, ceases to be a pelvic organ, and rises into the abdomen, which in consequence becomes enlarged and prominent, and a corresponding change is effected in the state of the umbilicus; while at the same time certain alterations take place in the os and cervix uteri, affecting their form, texture, &c. which we can recognise by touch.

4. The contents of the uterus so enlarged; the presence of a fœtus therein, and its motions, which we endeavour to ascertain by manual examination, both *externally* through the abdominal parietes, and *internally* per vaginam; and also by the adoption of auscultation to discover the pulsations of the fœtal heart and the placentary sound.

5. Certain organised substances may, under suspicious circumstances, be discharged from the uterus, by a proper examination of which we may be enabled to determine whether they are the product of conception, and of course proofs of pregnancy.

6. After death we may be called on to make an investigation for a like purpose, and, by examination of the uterus and its appendages, to determine the question of actual pregnancy, or of previous impregnation. I shall notice the principal of these signs in detail.

Now it is quite obvious, that of the signs thus enumerated some are of a kind much more decisive than others, and in this respect I think we may very conveniently divide them into three classes; considering the first and second groups as *presumptive*, the third as *probable*, and the fourth, fifth, and sixth as *unequivocal*. Many of the sympathies included in the first class are not necessarily the result of pregnancy only, as their specific cause, but may arise equally from the uterine irritation, which is common to that and other conditions of the female system, and hence one great source of deception and error; while, on the other hand, conception is occasionally productive of so little disturbance or alteration in the exercise of the several functions usually affected, that one of our principal guides in forming an opinion is unavailable. And again, conception sometimes occurs when the system has been already in a state of disease, which, by the derangement previously produced,

will prevent the possibility of judging from the absence or presence of those indications to which we refer in ordinary cases; as happened in the instance of E. G., to be related hereafter,[1] who was labouring under disease of the heart, and had the catamenia suppressed two whole years when she conceived.

With reference to the period after conception at which it may be expected that a woman will begin to experience any of those constitutional or other changes which would suggest the idea of pregnancy, it may be stated that in general this will not happen until one or two menstrual periods have passed by without the appearance of that discharge; but there is much diversity in this matter. I shall have occasion, by-and-by, to notice the case of a lady who began to be sick the day after she was married,[2] and her delivery took place exactly nine months afterwards. I have since seen another, who was married on Monday and began to complain on Saturday; she was delivered eight months after of a child, evidently wanting a month of maturity. In some instances I have known the first intimation supplied by some uneasy or painful sensation; a patient of mine has frequently told me that before she had any other evidence of being pregnant, she became aware of it from a peculiar burning sensation, which she distinctly referred to the situation of one or other ovary.

CHAPTER III.

INDIVIDUAL SIGNS—SUPPRESSION OF THE MENSES—NAUSEA AND VOMITING—SALIVATION.

Suppression of the menses.—This is one of the symptoms of pregnancy our investigation of which must almost always be encumbered with this difficulty,—that our knowledge must be derived from the statement of the female herself, nor can we have in general any certain means of disproving or confirming her assertion. It is moreover a circumstance which, notwithstanding its general subjection to a fixed law, has been fully proved by experience to be liable to very many exceptions and deviations.

We are indeed quite justified in adopting as a general rule that in healthy women, whose menstruation has been established and continued regular, and who are not nursing, conception is followed by a suppression of the menstrual discharge at the next return of its period; but then this suppression may not so occur, and on the other hand it may happen from a variety of other causes altogether

[1] See p. 30.

[2] "Aliæ vero, statim primis a conceptione diebus, adeo a novâ istâ mutatione, ut misere ægrotent, patiuntur." Rœderer, Elem. Art. Obst. p. 45. § 142. "Dès l'instant même de la conception." Desormeaux, Dict. de Méd. tom. x. p. 410.

unconnected with pregnancy: for these reasons we ought, whenever we come to consider this sign, to weigh very fully all the possible circumstances of the individual case before us, and view it in relation to the various exceptions which experience has from time to time shown to exist. Thus we must recollect that cases have occurred in which conception took place previous to menstruation. One instance of this happened under my own observation, and a very remarkable one is mentioned by Morgagni in these words: "I was acquainted with a maiden of a noble family who married before menstruation took place, though the menses had been expected for some years; nevertheless she became exceedingly fruitful. We were the less surprised at this circumstance because the same thing had happened to her mother."[1] Frank had a patient who gave birth to three children without ever having menstruated or had lochial discharge, and he saw three others who never had the catamenia, but were not deficient in lochia after delivery.[2] A woman, 55 years of age, very lately resided in Cornwall, who had borne several children and always enjoyed good health, but had never menstruated or had vicarious discharge of any kind.[3] Capuron quotes several cases of fecundity without menstruation,[4] and Foderé assures us of the fact.[5] Sir E. Home relates the case of a young woman who married before she was seventeen, and never having menstruated became pregnant, and four months after delivery was pregnant a second time; the same thing occurred again, and after the third pregnancy she menstruated for the first time, continued to do so for several periods, and became pregnant again.[6]

Some women are very irregular in the returns of their menstrual periods, having them prolonged much beyond the usual interval. The writer once attended an unmarried woman of 40, affected with polypus uteri, who assured him that the returns of the catamenial discharge with her had been frequently deferred for more than six months without any accompanying circumstance of ill health. Instances of habitual suppression for shorter periods are frequently met with; Zacchias mentions that he attended a patient who used to menstruate regularly, but who never conceived until the discharge had been suppressed for three or four months previously. A case somewhat similar is related by Mauriceau,[7] who very justly remarks that such cases not unfrequently give rise to the supposition of protracted gestation.

[1] De Causis et Sediqus Morborum, Epist. xlvi. 3. See also Foderé, Méd. Lég. tom. i. p. 395, and tom. ii. p. 437. Desormeaux, Dict. de Méd. tom. x. p. 393, and Mauriceau, Obs. 393, vol. ii. p. 326.

[2] De Morb. Hom. Curand. art. *Amenorrhœa.*

[3] "Ego habui amicam laudabilis temperamenti et complexionis quæ octo filios tulit consequenter, id est omni anno unum; nunquam tamen visa una gutta sanguinis menstrui." Low, p. 523.

[4] Méd. Lég. relat. à l'accouchement, &c. p. 96-7.

[5] "J'ai eu occasion de m'assurer complétement de ce fait." tom. i. p. 395.

[6] Philos. Trans. vol. cvii. p. 258.

[7] Observation 556, tom. ii. p. 461.

At the period which is usually denominated *the change of life*, it is very usual to have the menses suppressed for two or three months and then return profusely, giving rise to the idea of pregnancy and abortion, both suppositions being equally unfounded.

On the other hand cases occasionally occur in which women have conceived after menstruation had apparently ceased.[1]

In married women, and others who have been incurring the risk of pregnancy, suppression may arise from a variety of causes altogether independent of conception; such as different forms of disease, exposure to cold and hardship, mental emotions, particularly that of fear, the effects of which latter I have had an opportunity of observing in very numerous instances in some of our prisons, where young women constantly apply to the physician in consequence of their menses being suppressed, which they very often, and apparently with great reason, ascribe to the alarm and terror which they suffered when arrested and carried to prison.

Sometimes, though the instances are of course rare, women will conceive when the menses have been long suppressed in consequence of disease.[2] About forty years ago I attended a patient, a married woman, named E. G., whose pregnancy was not even suspected by herself or her friends till she miscarried of a fœtus of five months. She was labouring under disease of the heart, which had induced dropsy, and had had no menstrual discharge *for two years previous to conception*. Her abdomen had increased in size, but this was attributed to her dropsical state, she had sick stomach, but so she had had for a whole year before, and she was taking medicines likely to nauseate: there was scarcely any change in the breasts.

A woman may conceive while nursing, without any previous return of the catamenia, which, however, very often happens in such cases; and I think it will generally be found that when a woman who has been giving suck for some months without menstruating, then has the discharge once, and not again, while soon afterwards there is observed to be a diminution in the quantity of her milk, both suppressions are most probably the result of a fresh conception having taken place. I have very constantly observed it to be so, and Dr. Ingleby mentions a case in which this occurred nine times in succession, so that between each pregnancy and the succeeding, the discharge appeared only once.[3]

Here, then, we have a variety of cases in which the absence of the menstrual discharge could not be made a means of diagnosis, or, if assumed as affirmative of pregnancy, would lead us into absolute error.

There is another variety of suppression which, as peculiar in its circumstances and apparently depending on change of habit with-

[1] Velpeau, tom. i. p. 182, op. cit.
[2] Ibid. p. 181.
[3] See Dublin Med. Journ. vol. vi. p. 329.

out reference to any morbid or indeed other appreciable cause, is particularly likely to deceive. I allude to the suppression which not unfrequently occurs in young and newly married females, for two or three periods, while at the same time, as is very usual, the breasts increase in size and become sensitive, and the patient, readily believing such testimony of what she wishes, entertains no doubt whatever as to her state, until after the lapse of a couple of months an appearance takes place, which, although in every respect the same as the patient's ordinary menstruation, and without any of the symptoms of miscarriage, is at once set down as the commencement of that accident, and we are called on to prescribe. Such cases are by no means unfrequent[1] in their occurrence, but they are always liable to great doubt, and extremely embarrassing to the practitioner, who must act with great caution and give a very guarded opinion. Schmitt's ninth case, first division, is a well marked instance of this state, and in his thirteenth case the suppression continued for nine months after marriage in a very young woman, during which time the abdomen enlarged, and then pains came on like those of labour, but nothing was expelled, and the abdomen subsided, as happened also to the physician's daughter mentioned by Harvey.

In a case lately seen by the writer, the lady who had been, during her virgin life, subject to dysmenorrhœa, with irregularly prolonged menstrual periods, has, since her marriage, had the discharge suppressed several times for two or three periods in succession, with equivocal accompanying symptoms of pregnancy, and uninterrupted good health; these suppressions have each time terminated with an accession of pain like what she used formerly to experience at her menstrual periods, followed by a gush of sanguineous discharge, and the ejection of flakes of membrane having all the characters of that formed in dysmenorrhœa, but without any trace of the structures of an ovum.

There appears to me great reason to believe that in some of these cases conception really occurs, and gives rise to the alterations observed in the system, but the ovum perishing, no evidence is furnished of its existence, and to such a state as this the observation of Harvey clearly points when he says, "for although the female sometimes conceiving after coition doth not produce a fœtus, yet we know that those symptoms did ensue which gave a clear testimony of a conception set on foot though it came to nothing."[2]

It now remains to view the matter in another light, and enquire how far the presence of the catamenia can be considered as evidence that the woman is not with child.

The opinion of Denman is, that "suppression of the menses is

[1] "I have known," says Denman, "*many instances* of young married women who have ceased to menstruate for several months, independently of any disease, when they were not with child." Introd. p. 220. See also Alexander Hamilton on Female Complaints, p. 122, 123.

[2] Ent's Translation, ed. 1653, p. 540. Latin 4to. ed. 1766, tom. ii. p. 593.

one of the never-failing consequences of conception,"[1] and he ridicules both the asserted conceptions and those who believe them, with a severity which, while it forms a great contrast to his general calm and philosophic style, renders his opinion less free from doubts of its accuracy. The latest supporter of Denman's opinion is Dr. Hamilton, of Edinburgh, who, in his late work,[2] throws discredit on all the cases of non-suppression during pregnancy. Schmitt also appears to discountenance the fact when he says, that "among all the cases of doubtful pregnancy which he had noted, and in which the menses had appeared more or less regularly, there was not one in which pregnancy really existed." But with the greatest respect for the opinions of these writers, I cannot receive or adopt them in opposition to my own experience, and to a host of the highest authorities who have written on the subject: with regard to Schmitt, I shall take some of the cases which he has himself so admirably recorded as proofs opposed to his general position above quoted. In case 23, div. 1, he tells us that the woman's ordinary menstrual period was five weeks, and that she had menstruated several times in the beginning of her former pregnancies. And another woman, he says, menstruated for the first seven months of her first pregnancy, case 31, div. 1.

I have met with several instances of menstruation occurring *once* after conception, and am in the habit of attending two ladies to both of whom it happened; and one of them, who has borne four children, assured me that she always knew when she had become with child by the unusual profuseness of the next period. This is distinctly taken notice of by Johnson, who says, "some have the menstrua copiously at the first period."[3] A diminution in the quantity, under similar circumstances, has, however, been more frequently observed. "I have seen," says Desormeaux, "some cases in which the appearance of the menses in small quantity, and at an unusual time, was almost a certain sign of conception."[4] A similar remark is made by Puzos, Stein and Gardien.[5] An interesting case, which confirms this, is detailed by Dr. Dewees.[6] A gentleman, who had been obliged to absent himself from his family for many months, returned secretly, and spent one night at home with his wife, in consequence of which she conceived, as the event proved, although the regular return of her catamenia, a week afterwards, in their usual quantity, had led her to expect that she had escaped with impunity.

Again, there are individuals who menstruate with regularity *for more than one period* after conception. "It is well known," says Burton,[7] "by experience, that the menstrual discharge sometimes

[1] Introduction, p. 219.
[2] Practical Observations on various Subjects relating to Midwifery, pp. 136–7.
[3] System of Midwifery, p. 100.
[4] Dict. de Méd. vol. x. p. 394.
[5] Traité des Accouchemens, vol. i. p. 489.
[6] Compendium of Midwifery, p. 165.
[7] New System of Midwifery, p. 285.

continues in its usual regularity for two or three months after conception without any dangerous consequences." Instances of this are not at all unfrequent, and are quoted by all who have written at large upon this subject,[1] and one of the most distinguished writers of the present day says, he has "eight well proved cases in which menstruation continued during pregnancy.[2] It has been asserted as an objection, that these discharges are not truly menstruation; but the discussion of that question does not concern us here. We have only to consider whether there does not frequently, during pregnancy, take place a coloured discharge from the vagina, so closely resembling menstruation in its periods, quantity, and duration, that neither the woman herself nor the medical enquirer shall be able to detect any difference between them; and of this I must declare with Dewees and Gooch, "there can be no doubt."

Still I agree with Dr. Hamilton in believing, that many reputed cases of this kind have obtained credence for want of a sufficiently careful examination, by which it would have been discovered that there were such marked differences between the discharges taking place during pregnancy, and those to which the woman was naturally subject, in the intervals of their returns, in their duration, and in their quality, as would of themselves suggest the probable existence of some altered state of the system. It is not unreasonable to suppose, with Van Swieten,[3] Frank,[4] Rœderer,[5] and others, that such discharges do not proceed from the same source as the ordinary catamenia, "but from the vessels distributed about the vagina and the external surface of the neck of the womb,"[6] from which situation even the ordinary monthly discharge has been observed to flow; this view is also maintained by Desormeaux[7] and Velpeau.[8]

Otherwise the safety of the ovum would appear incompatible with the profuse and frequently repeated discharges which some women experience during pregnancy without abortion ensuing: and apparently this has been the source of the discharge in those women who have continued to menstruate after the removal of a

[1] Capuron, Méd. Légale, p. 63. Belloc, Quest. Méd. Lég. p. 62. Mauriceau, vol. i. pp. 72, 155. Dewees, Compendium, p. 93, et seq. Desormeaux, Dict. de Méd. vol. x. p. 394. Gardien, vol. i. p. 489. Gooch, Diseases of Females, pp. 202–3. Van Swieten, Commentaries, vol. xiii. pp. 379, 458. Beck, Principles of Med. Jurisp. p. 76. Frank, vol. iii. p. 378. Blundell's Principles of Obstetricy, p. 165. Capuron, Traité des Accouchemens, Brussels ed. p. 43. Chambon, Maladies des Femmes, vol. v. p. 57. Rœderer, Elem. Art. Obst. p. 46, cap. vii. §. 146 a.

[2] Velpeau, tom. i. p. 182.

[3] Commentaries, sect. 1305.

[4] Epit. de Morb. Hom. de Metrorrhagiâ.

[5] Rœderer ut supra. See also Hoffman, Ratio Med. tom. iv. part 9, cap. 623. Burton, op. jam. cit. p. 285.

[6] Van Sweiten, Commentaries, vol. xiii. pp. 379, 469.

[7] Dict. de Méd. vol. xiv. p. 184–5.

[8] Traité des Accouchemens, tom. i. p. 127–8.

great part of the uterus when inverted, as happened to the lady so felicitously operated on in this city by Dr. C. Johnson.[1]

In still more rare instances, of which I have never met one, but which are recorded by writers of credit, women have continued to have these discharges through nearly the whole period of pregnancy.[2] Dewees mentions an instance in which this happened to both mother and daughter,[3] who were in the habit of menstruating up to the seventh month. "On a vu," says Gardien, "chez des femmes jeunes et pléthoriques l'évacuation menstruelle continuer pendant les trois ou quatre premiers mois, quelquefois même pendant tout le cours de la grossesse."[4] And to the same effect we have the authority of another most accurate and trustworthy writer, Heberden, who says he "knew one who never ceased to have *regular returns of the menstrua during four pregnancies quite to the time of her delivery.*"[5]

The last, and perhaps most remarkable exceptions to the general rule, to which it appears necessary to allude, are those very singular cases in which menstruation has either appeared for the first time after conception, or in which it continued only during pregnancy. Perfect's eightieth case[6] affords a very satisfactory instance of the former; and Mr. Reid has recently published the case of a woman of twenty-six years of age who had previously borne children, of whom he mentions, as a curious fact, that during the nine years that she had been married she had never seen the catamenia until she became pregnant with her last child, after which up to the term of quickening they appeared regularly every month; but she was always able to judge pretty correctly as to the time of conception by a peculiar sensation of drowsiness attended by sickness, which then immediately affected her.[7]

Daventer, Dewees, and Baudelocque[8] furnish us with examples of women whose habit it was to menstruate *only* during pregnancy, and who did so through the whole period of that condition, though never at any other time.

There is a source of deception against which we can hardly guard, and which I know to have been resorted to by a young woman in one instance. She apprehended that she was pregnant, but deceived those about her by staining her linen at the usual periods of menstruation: this completely lulled the suspicion of her friends for two months, but in the third a circumstance was dis-

[1] See Dublin Hospital Reports, vol. iii. p. 479.
[2] Foderé, vol. i. p. 437.
[3] Dewees, Comp. Mid. p. 96.
[4] Traité des Accouchemens, tom. i. p. 489. See also Blundell's Principles of Obstetricy, p. 165.
[5] Commentaries on Diseases, p. 208.
[6] Cases in Midwifery, vol. ii. p. 71.
[7] Lond. Med. Gaz. May 2, 1835, p. 146. See several such cases referred to in Velpeau, Traité des Accouchemens, tom. i. p. 117, 118.
[8] Daventer, Novum Lumen Art. Obst. cap. xv. p. 54. Dewees, Comp. Mid. p. 97. Baudelocque, Art d'Accouchement, vol. i. p. 197-8. Ed. 1822.

covered which proved that she had incurred the risk of pregnancy, and the writer was requested to see her. On looking at the breasts the areolæ were so distinct, and exhibited their proper characters so perfectly, that I felt persuaded she was pregnant; and perceiving that her breasts were marked with the silvery lines observable on parts formerly much distended, I told her my opinion that she was then with child, and moreover that she certainly had been so before. This completely took her by surprise, and she acknowledged that she had given birth to a child about two years previously, and had suffered much from the distension of her breasts during pregnancy. The event also proved that I was correct in supposing her pregnant then, as she was afterwards in proper time delivered of a full-grown child.

Belloc, p. 65, takes notice of this kind of imposition, which he informs us was attempted on himself by a girl three months advanced. "Il faut alors exiger que les parties soient lavées avec de l'eau tiède; si le sang ne reparait pas, le cas est suspect."[1]

We should not forget that there are cases occasionally met with, in which suspicions arise in connection with a non-appearance of the menses, the elimination of the discharge being prevented by some adventitious structure or imperforate state of some of the natural parts, especially of the hymen. In such a case the secretion takes place, but being prevented from leaving the body, accumulates within, distending the vagina and the uterus, and so giving rise to several of the sympathies usually accompanying pregnancy. The writer had an instance of this under his care in a girl of 17, who between the age of 15 and 16 began to exhibit the signs of puberty. When he saw her, suspicions had been excited of her being pregnant. The abdomen was enlarged, and the uterus could be felt as high as the umbilicus, the breasts were painful, she had occasional vomiting, and pain in the back and along the thighs. Complete inability to pass water was the cause of my being requested to see her, and on hearing the above detail of symptoms I had my suspicions too, but did not express them: on attempting to pass the cathèter I encountered a soft elastic tumour protruding from the external parts, displacing the urethra, and concealing its orifice. This rendered a closer examination necessary, which detected the hymen attached completely all around, and distended by fluid from within: having relieved the bladder, I punctured the opposing membrane and gave exit to about three pints of a dark chocolate-coloured fluid, without smell and uncoagulated.

Frank[2] mentions two such cases, in one of which the abdomen was as much enlarged as at the sixth month of pregnancy, and the girl herself thought that she felt a foreign body in the uterus, which, however, was found to contain five pounds of a dark and thick

[1] Capuron, p. 81. Mahon, Méd. Légale, vol. i. p. 153. Foderé, tom. i. p. 438.

[2] Epitome de Morbis Mominum Curandis. Art. *Amenorrhœa.*

blood, without any offensive odour: in the other case the girl was believed to be with child, and in consequence suffered temporary loss of reputation, but the hymen was found imperforate, and, when punctured, gave passage to several pints of blood.

Madame Boivin[1] has collected the details of ten such cases, among which are two much in point. In one from Denman the girl was submitted to examination from a belief that she was with child; the uterus was as high as the navel, and contained no less than four pounds of blood of the colour and consistence of tar.[2] The other case occurred to Dr. Macauly, in a young woman of 19, whom he supposed to be not only pregnant, but in labour, as she had pains, and he felt what he thought was "the membranes with the water pushing low down."[3] On puncturing the hymen there came away two quarts of thick black blood. In a case of obstruction related by Dr. Dewees, he mentions that he was fully impressed with the belief that pregnancy existed, as he could distinctly feel the enlarged uterus, and even thought he felt the motion of a fœtus.[4]

Such exceptions having been proved to exist should always be taken into account to guard us against error, but it should be acknowledged as a general rule, to which there will be found but few exceptions, that when suppression of the menstrual discharge takes place in a healthy woman, previously regular in its returns, who has not sustained any accident, and continuing for some months, is not attended with any impairment of health, it ought to be regarded as a circumstance strongly indicative of pregnancy, especially if accompanied by other ordinary symptoms of that state;[5] and, on the other hand, considering that menstruation continues in only a very few instances after conception, the regular appearance of that discharge ought certainly to be esteemed a forcible presumption against the existence of pregnancy, ever remembering, however, that the case in question may be one of the rare exceptions.

Nausea and vomiting.—In general, when pregnancy has occurred, the stomach becomes irritable, in consequence of which the woman is distressed with nausea and vomiting, especially in the early part of the day: in some this commences almost immediately after conception.[6] I had once a lady under my care, in whom there was reason to believe it began the day after conception, and the date of her labour corresponded to such a belief. More recently I attended a patient who was married on Monday, and began to be squeamish on Saturday; her delivery took place within nine months. Most frequently it occurs for the first time between two

[1] Mémoire sur les Hemorrhagies internes de l'uterus, p. 73.
[2] Introduction to Midwifery, p. 87. 5th ed.
[3] Smellie's Cases in Midwifery, vol. ii. p. 15.
[4] Essays on several subjects, &c. p. 337.
[5] See Belloc, Cours de Méd. Légale, p. 60.
[6] See Desormeaux, Dict. de Méd. tom. x. p. 388 and 410; Mauriceau, Maladies des femmes grosses, tom. i. p. 129.

and three weeks after conception, in others not for as many months, and in some not at all: of this I have now seen several instances.

A late writer, whose experience and abilities entitle his opinion to great respect, thinks that when vomiting "is entirely absent, utero-gestation does not proceed with its usual regularity and activity."[1] There is little doubt that, in general, vomiting is a useful concomitant in pregnancy, and that its sudden cessation is very often indicative of an unfavourable change in the contents of the womb, and of approaching abortion: but I have seen so many instances in which females have been altogether exempt from this affection in several successive pregnancies, through which they passed most favourably and gave birth to strong and healthy children, that I must decidedly dissent from the opinion above quoted as a general rule, although entertaining the highest respect for its author.

On the other hand, irritability of the stomach may occur from a variety of causes totally independent of pregnancy, and connected with disease or disordered function, such as suppressed menstruation, so that we must be slow to draw an inference merely from the presence of such a symptom: at the same time a proper degree of inquiry will generally enable us to distinguish between the two kinds. The vomiting of pregnancy is not accompanied by any other symptom of ill health; on the contrary, the patient feels perhaps as well as ever in other respects, and may even take her meals with as much appetite and relish as at other times, but while doing so, or immediately after, she feels suddenly sick, and has hardly time to retire when she rejects the whole contents of the stomach, and presently feels quite well again: in some instances, however, the woman is distressed by a perpetual nausea, and in a few rare cases vomiting has been so excessive as to endanger or even destroy the life of the woman from inanition,[2] or by rupture of some internal organ.[3]

Salivation.—By an extension of the sympathetic irritation which in the stomach causes nausea and vomiting, the salivary apparatus is in some persons excited to such a degree as to produce complete and copious salivation.[4] This fact was expressly noticed by Hippocrates as one among the symptoms of pregnancy,[5] and has been observed by many others since.[6] Dr. Dewees records a well-marked instance of the kind,[7] and the writer was consulted about

[1] Ramsbotham, Practical Observations on Midwifery, part ii. p. 366.

[2] See Mem. Lond. Med. Soc. vol. ii. p. 125; Med. Chir. Trans. vol. iii. p. 139; Ashwell on Parturition, p. 194; Lond. Med. Gaz. vol. v. 1830, p. 287.

[3] See Duparcque sur les dechirures de l'uterus, and Lond. Med. Gaz. Jan. 17, 1829.

[4] Copiosa salivæ excretio: Rœderer, Elem. p. 45.

[5] The passage is quoted by Van Swieten, vol. xiii. p. 371, sect. 1293.

[6] See Gardien, vol. ii. p. 32. Burns, p. 237.

[7] Compendium of Midwifery, p. 115; see also Schmitt's twenty-second case, second div.; and Capuron, p. 43.

another in which it occurred profusely in two successive pregnancies, but ceased immediately on delivery. This case entailed much undeserved blame on the attendant physician, who was accused of having given the lady so much calomel as to bring her system under the peculiar influence of mercury; whereas in fact she had not taken any, and although she consulted several medical men, the real nature of the case was not guessed at: such a condition is, however, easily distinguished from the ptyalism induced by mercury, by the absence of sponginess and soreness of the gums, and of the peculiar fœtor, and by the presence of pregnancy.

CHAPTER IV.

MAMMARY SYMPATHIES—ENLARGEMENT—SENSIBILITY—THE AREOLA—SECRETION OF MILK.

When conception has taken place, and the menses have been suppressed for one or two periods, the woman generally becomes sensible of an alteration in the state of the breasts, in which she feels an uneasy sensation of throbbing, or of stretching fulness accompanied by soreness and tingling pains felt about the centre of them and in the nipple. The breasts themselves grow sensibly larger and more firm; a circle around the nipple becomes altered in colour and structure, constituting the areola; and as gestation advances, milk is secreted. But there is considerable variety in the period of gestation at which these changes may occur, as well as in the degree of their development; for while in some instances they may be recognised very soon after conception, and proceed with such activity as to cause the woman very considerable pain from the tension of the integuments, which in consequence sometimes suffer structural alteration, and in a few instances I have known inflammation and abscess ensue; not long since a lady in the fifth month of pregnancy told me that she suffered such distress from the swelling and painful state of her breasts, that she was obliged several times a day to expose them to the heat of a fire while she rubbed them with oil, from which proceeding she experienced more relief than from any other: in others the changes are hardly perceptible until gestation is far advanced, or even drawing to a close. In general, however, we may expect to find these sympathies (except the secretion of milk) becoming developed when two months of pregnancy have been completed; but any opinion deduced from their existence must be modified by several considerations. We must recollect that the changes of form and size may be the result of causes unconnected with conception. In many women the breasts enlarge merely in consequence of marriage and the habits thence arising; in others it may happen from the person becoming fat; it may be caused by accidental suppression of the menses, or

their retention by an imperforate hymen,[1] or other causes capable of distending the uterus, under which circumstances, especially in women of a sanguine temperament, the breasts often become both hard and painful.

The enlargement from pregnancy may, however, in general be distinguished from that produced merely by fat, by the greater firmness of the breast, which also feels knotty and uneven when pressed by the hand, and a corresponding fulness not being found in the other parts of the body.

With some women of an irritable habit, swelling and pain of the breasts accompany each return of the catamenia, especially if they are the subjects of dysmenorrhœa; but under such circumstances the tension and uneasiness subside in two or three days, whereas that caused by pregnancy continues to increase, except when the ovum happens to be blighted, in which case the breasts become flaccid, and lose the characters which they had previously assumed. It not unfrequently happens that in women of weakly and delicate constitution very little change can be observed in the breasts till pregnancy is far advanced, or even up to its termination; I lately attended a lady whose health had been delicate during her pregnancy, and no perceptible change took place in the breasts until the fifth day after delivery.

Gardien[2] asserts that the swelling of the breasts is not observable in women who menstruate during the early months of pregnancy; and Mahon[3] makes the same observation. I cannot undertake to affirm how far this may be correct as a general rule, but I think I have observed that when women have irregular hæmorrhages during gestation, especially with placental presentation, the mammary sympathies are in general very feebly exerted, thus rendering a doubtful case still more so by such a combination.

It should also be recollected that such a condition of fulness of the breasts may be natural to the individual, or it may take place at the turn of life, when the menses becoming naturally suppressed, the person grows at the same time fatter, and the breasts under such circumstances become full, and are not unfrequently painful,—which circumstances concurring are often improperly considered in the light of cause and effect, and irritability of the stomach being at the same time experienced, the woman believes herself pregnant. There is, however, one of those changes which, if carefully observed, is of the utmost value as an evidence of pregnancy, which, according to my experience, can alone produce it—I allude to the altered condition of the areola.

The areola.—The alteration which takes place in that part of the breast which immediately surrounds the nipple, and is called the areola, appears to me not to have received that degree of notice

[1] See cases noticed in the preceding chapter, pp. 51, 52.
[2] Traité des Accouchemens, tom. i. p. 490.
[3] Médecine Légale, tom. i. p. 151.

which its importance merits, as being one of the most certain external indications of pregnancy, arising from the operation of sympathy. On this, however, as on many other points connected with this investigation, a very marked difference of opinion exists; for while some suppose, with Denman, that the alteration in the areola "may be produced by any cause capable of giving to the breasts a state resembling that which they are in at the time of pregnancy;" many others of equal authority maintain the opinion of Smellie and William Hunter, who regarded it as the result of pregnancy only; an opinion in which I entirely concur, and think I shall be able to show that much of the discrepancy of opinion on this subject has arisen from want of sufficient care in observing, and accuracy in describing the essential characters of the true areola.

Most of those who have noticed this change, appear, from their observations on it, to have attended to only one of its characters—namely, its colour, which is, in my opinion, the one of all others most liable to uncertainty. I should here, perhaps, except the description by Rœderer, which is by far the most accurate I have met with: "Menstruorum suppressionem mammarum tumor insequitur; quocirca mammæ crescunt, replentur, dolent interdum, indurescunt: venæ earum cœruleo colore conspicuæ redduntur, *crassescit papilla, inflata videtur, color ejusdem fit obscurior, simili colore distinguitur discus ambiens qui in latitudinem majorem expanditur, parvisque eminentiis, quasi totidem papillulis, tegitur.*"[1]

The several circumstances here enumerated at least ought in all cases to form distinct subjects of consideration, when we propose to avail ourselves of the condition of this part as an indication of the existence or absence of pregnancy. One other, also, equally constant and deserving of particular notice, is a soft and moist state of the integument, which appears raised and in a state of turgescence, giving one the idea that, if touched by the point of the finger, it would be found emphysematous; this state appears, however, to be caused by infiltration of the subjacent cellular tissue, which, together with its altered colour, gives us the idea of a part in which there is going forward a greater degree of vital action than is in operation around it; and we not unfrequently find that the little glandular follicles, or tubercles, as they are called by Morgagni, are bedewed with a secretion sufficient to damp and colour the woman's inner dress. These changes do not take place immediately after conception, but occur in different persons after uncertain intervals: we must therefore consider, in the first place, the period of pregnancy at which we may expect to gain any useful information from the condition of the areola. I cannot say positively what may be the earliest period at which this change can be observed, but I have recognised it fully at the end of the second

[1] Elem. Art. Obstet. pp. 46–7. The description by Musitanus is tolerably accurate, but not so full: *vide* his work, p. 64.

month, at which time the alteration in colour is by no means the circumstance most observable, but the puffy turgescence (though as yet slight), not alone of the nipple but of the whole of the surrounding disk, and the development of the little glandular follicles, are the objects to which we should principally direct our attention, the colour at this period being in general little more than a deeper shade of rose or flesh colour, slightly tinged occasionally with a yellowish or light brownish hue. During the progress of the next two months, the changes in the areola are in general perfected, or nearly so, and then it presents the following characters: a circle round the nipple, whose colour varies in intensity according to the particular complexion of the individual, being usually much darker in persons with black hair, dark eyes, and sallow skin, than in those of fair hair, light-coloured eyes, and delicate complexion. The extent of this circle varies in diameter from an inch to an inch and a half, and increases in most persons as pregnancy advances, as does also the depth of colour. I have seen the areola at the time of labour almost black, and upwards of three inches in diameter, in a young woman of very dark hair and complexion; while in another instance, lately seen by the writer, its breadth around the base of the nipple did not at any time of gestation amount to a quarter of an inch, and at first was not more than an eighth; this circle, however, narrow as it was, was studded at nearly regular intervals with the glandular tubercles, which were not unlike a ring of beads.[1] In negro women the areola becomes jet black, with somewhat of a purple shade through it.[2]

In the centre of the coloured circle, the nipple is observed partaking of the altered colour of the part, and appearing turgid and prominent,[3] while the surface of the areola, especially that part of it which lies more immediately around the base of the nipple, is studded over and rendered unequal by the prominence of the glandular follicles, which, varying in number from twelve to twenty, project from the sixteenth to the eighth of an inch:[4] and,

[1] A somewhat similar case occurred to Dr. Hamilton: see his Practical Observations, p. 145.

[2] In some of the monkeys, the change in the nipple, and part around it, is very remarkable towards the latter period of gestation, when it becomes turgid and of a bright vermilion colour.

[3] "Crassescit papilla, inflata videtur."—*Rœderer.*

[4] These follicles or tubercles of the areola, although by many considered merely as cebaceous glands, have really a much more important character, and more intimate connection with the peculiar structure and function of the breasts, and hence might naturally be expected to display an active sympathy in any condition of the system which called into action the peculiar function of these organs, which is the secretion of milk for the support of the new being, for which purpose certain previous changes in the glands and ducts are necessary. Now it appears that these areolar tubercles are intimately connected with the lactiferous tubes, some of which can be traced into them and opening on their summit,* so that in pregnant women

* See Morgagni, Adversar. i. pp. 10, 11, plate 4, fig. 2.

lastly, the integument covering the part appears turgescent, softer, and more moist than that which surrounds it; while on both there are to be observed at this period, especially in women of dark hair and eyes, numerous round spots, or small mottled patches of a whitish colour, scattered over the outer part of the areola, and for about an inch or more all round, presenting an appearance as if the colour had been discharged by a shower of drops falling on the part. I have not seen this appearance earlier than the fifth month; but towards the end of pregnancy it is very remarkable, and constitutes a strikingly distinctive character exclusively resulting from pregnancy: the breasts themselves are at the same time generally full and firm, at least more so than was natural to the person previously, and venous trunks of considerable size are perceived ramifying over their surface, and sending branches towards the disk of the areola, which several of them traverse; along with these vessels, the breasts not unfrequently exhibit, about the sixth month and afterwards, a number of shining, whitish, almost silvery lines like cracks; these are most perceptible in women who, having had before conception very little mammary development, have the breasts much and quickly enlarged after becoming pregnant;[1] this appearance will be more particulary dwelt on when we come to consider it under the signs of delivery; but, for the present, it should be remarked, that when once formed these lines continue permanent, and, consequently, will not serve as diagnostic marks in a subsequent pregnancy. Such, then, are the essential characters generally belonging to, or connected with, the true areola, the result of pregnancy; and when found possessing these, it ought to be regarded as a very strong proof of the existence of that condition, no other cause being capable of producing it, while it affords us facilities in forming an opinion not otherwise available—first, in being appreciable at those early periods of gestation which are involved in most doubt, and, secondly, that opportunity will be given of examining it when other modes of investigation would be denied us, or when perhaps the bare mention of a suspicion could not be ventured on.

But we cannot stop here, and rest satisfied with the knowledge of the distinctly affirmative part of the question only, without also

a sero-lactescent fluid may be often distinctly perceived issuing from them, and in nurses they have been observed to pour forth drops of perfect milk. "I have seen," says Morgagni,* "lactiferous tubes going to each of these tubercles and expanding within them, so that, in fact, their formation was in a great degree caused by the dilatation of these ducts, and their prominence beyond the surface of the areola." In addition to this, it appears, from the more recent investigations of Meckel† and others, that each of these follicles is, in common with the nipple and surrounding areola, furnished with very small sebaceous glands, which lie around its base, the ducts of which, from one to four in number, are found opening on the surface of the tubercle.

[1] See case already mentioned, page 34.

* Adversar. v. p. 10.

† Manuel d'Anatomie, tom. iii. p. 652.

looking to certain circumstances which will most materially modify the certainty of our conclusions.

In the first place, then, pregnancy may exist and the areola remain deficient in at least one of its usually essential characters, and that, the one too generally supposed to be its most important distinctive mark—namely, the colour. The writer has seen several well-marked instances of this, two of which he formerly noticed, one in a lady of very fair skin, blue eyes, and light hair; the other in a lady of fair skin, but with black hair and very dark-brown eyes: in both, the colour of the areola was so slight as hardly to differ from that of the surrounding skin, and certainly was less distinct than I have frequently seen it in the virgin, but all the other characteristic changes enumerated were well developed in both.

It has been already remarked, that in some the mammary sympathies are almost entirely wanting, or at most very feebly exerted, even though gestation should be proceeding healthily, and it should be added, that even where there is no such deficiency in the mammary changes and areola, should the fœtus be blighted, the characters of the latter will soon decline, and fade away in common with the other changes previously effected in the breasts, which under such circumstances become soft and flaccid, lose their sensibility, and cease to exhibit the enlarged condition of the veins; the areolar tubercles also shrink, and are no longer bedewed with their sero-lactescent moisture.

Now, as to the colour alone, we may adopt this belief, that where we find a circular disk of a dark-brownish shade around the nipple, especially in a woman of light hair and fair complexion, even though it should be unaccompanied with the other changes natural to the part, it affords very strong presumptive evidence of a present or former state of pregnancy; but when so accompanied, it is a mark of great value, and in my experience has never yet deceived me: and I certainly never saw any other condition of the part produced by disease which could possibly be mistaken for it. At the same time, it should be observed that the areola does not always, in pregnant women, present all the characters I have described as belonging to it, nor does the perfection of its distinctive characters seem to depend so much on the degree of change and increase of vital activity in the breasts, as on some constitutional peculiarity; for I have repeatedly observed the ordinary mammary changes take place with great energy, so that the breasts themselves were greatly altered, and yet the areola exhibit little or no change, and, *vice versa*, the areolar signs are sometimes very distinct and perfect when the breasts are otherwise but slightly affected. I have seen it at the time of labour presenting the dark circle alone, without the prominence of the glandular follicles, but never saw an instance of their development in conjunction with the other changes already described, without the concurrence of pregnancy: their absence, therefore, ought not to decide our opinion against the existence of

that condition, though their presence would be with us a very convincing proof of previous conception: we should also be cautious in being influenced by the condition of this part, before the period stated as that at which its characters are in general developed and perfected.

Again, we must recollect that a woman may be presented to us for an opinion, who having perhaps very recently miscarried, her breasts may exhibit all the true characters of the areola, combined with several other circumstances really indicating a state of pregnancy; but if we do not use great caution in giving our opinion, it will in such a case appear falsified by the event, although really correct. In nurses, also, the characters of the areola are kept up, and continue in a state of considerable perfection.

A case which occurred while I was lecturing on this subject, afforded a very satisfactory illustration of the value to be attached to this evidence of pregnancy. A young woman came a considerable distance from the country to be admitted into Sir P. Dun's Hospital, the medical men in the country not having succeeded in affording her relief or restoring her health. A very prominent symptom of complaint was amenorrhœa of four months' duration, accompanied by uterine pain, want of appetite, &c. A very intelligent pupil suggested to me, after lecture, that he thought I must be mistaken in my account of the subject, as there was then in the house an unmarried patient, labouring only under amenorrhœa, whose breasts presented the areola with all the characters I had described. I immediately visited her, and on examining her breasts pronounced at once that there was the true areola of pregnancy—an announcement which she heard with the most fiery indignation, declaring that she would submit to any thing rather than lie under so calumnious an aspersion, and even consenting to permit an examination per vaginam, when proposed to her as the only thing which could save her character. On making the examination I was able to feel the fœtus distinctly by *ballottement*. She afterwards acknowledged that she had been "walking by moonlight with a young man who had a great regard for her."

If a woman has been pregnant before, and particularly if she has suckled or is nursing, it may embarrass our investigation. The colour of the areola depends on the disposition of an actual pigment between the cuticle and subjacent skin. Of this I have satisfied myself by making preparations of the part, one of which, showing this very distinctly, is preserved in my museum. In some persons, of fair complexion especially, this colouring matter is removed in some time after delivery, and the breast resumes its virgin appearance; in others the colour remains permanent, and there is even a slight prominence of the little glands to be observed sufficient to deceive an inexperienced eye. It is also to be recollected that it is peculiar to some young females to have the areola assume a shade of colour resembling that which we so frequently observe around or under the eyes, and in women of a swarthy hue it is sometimes

found in the virgin state of even a darker shade than that just alluded to: in such persons during pregnancy it becomes of an intensely dark, almost black, colour.

The conclusion which Gooch came to on this subject was, that "darkness of the areola rarely depends on other causes (than pregnancy), and that, when it exists, it may generally be looked upon as a sign either that the patient is pregnant or has been so formerly."[1] It seems remarkable that so accurate a writer as Gooch should have confined his description to the colour alone. Smellie's account is more accurate, and he considers it as the result of pregnancy only.[2] William Hunter has not, as far as I am aware, left us any description of what he considered the true areola, but he professed such faith in this sign as to assert that he could always judge by it whether a woman was pregnant or not, and on one occasion gave a remarkable proof of his accuracy. Happening to examine the breast of a subject brought to him for dissection, he immediately pronounced, from the appearance of the areola, that the woman had died pregnant: however, on examining the genitals, the hymen was found entire, but Hunter persisted in his opinion, declaring that the areola was more convincing than the presence of the hymen. The body was opened, and an impregnated uterus confirmed the justice of his assertion.

Dr. Campbell[3] appears to lay most stress on the colour, which he thinks may deceive in subsequent pregnancies, but altogether he considers the appearances presented by the areola, especially in a first pregnancy, as a more unequivocal sign than most others, and as much so as any, "not excepting fœtal movement itself." Dr. Blundell[4] also regards the areola changes when fully developed and clearly recognised as "deserving of a very confident reliance," and relates several cases in which he detected pregnancy by their means. The latest practical writer of authority on this subject is Dr. Hamilton, of Edinburgh, whose acute observation and extended experience necessarily give great weight and value to his opinion, which I am happy to find is decidedly confirmatory of the view I had previously taken of the subject.[5] He justly attaches great consequence to the appearance of turgescence of the integument, which he considers as the principal distinctive mark between the part during pregnancy, and at other times, in women who have had a family, and in whom the areolar disk retains its dark colour.[6] I have elsewhere related the particulars of a melancholy case in which the detection of the areolar changes, though at an early period, and in conjunction with circumstances which placed the occurrence of impregnation almost beyond the limits of belief, induced me to suspect and suggest the

[1] Account of Female Diseases, p. 205.
[2] Treatise on Midwifery, vol. i. p. 191.
[3] Introduction to Study and Practice of Midwifery, pp. 488. 493.
[4] Principles and Practice of Obstetricy, pp. 162, 163.
[5] In Cyclop. Pract. Med. vol. iii. p. 473.
[6] Pract. Obs. in Midwifery, part i. p. 145.

existence of pregnancy, which unfortunately the event proved to have taken place :[1] and another case which greatly confirmed my reliance on this sign, because occurring in a woman who had previously borne several children, was also highly interesting as another instance of pregnancy, existing under circumstances which apparently forbade the idea of such a state. I was requested to see a patient, M. S., affected with menorrhagia, arising, as was supposed by her medical attendant, from disease of the uterus: she was nearly forty years of age, and had borne five children ; in the May preceding she had miscarried in the fifth month, and the placenta was retained eight weeks, and then came away piecemeal. In July she returned to her husband's bed, but her health continued feeble, and she had at irregular intervals of one, two, or three weeks, profuse and foul uterine discharges, but had none of the usual symptoms which used to accompany her pregnancy in former instances, so that she utterly disbelieved in the possibility of being then with child. For two months previous to my seeing her, her fears had been much augmented by the presence of a tumour in the centre and lower part of the abdomen, which was almost constantly the seat of severe pain ; and she had still the foul uterine discharges. Under such circumstances I entertained little idea of the existence of pregnancy, but on seeing her breasts, I was rejoiced to find them exhibiting a very perfect example of the true areola, with all its characters so well marked that I did not hesitate to declare my belief that she was pregnant, though every other circumstance conspired to render it more than improbable. The uterine tumour felt as *hard as cartilage, and knotty all over its surface, was very painful, and exquisitely tender to the touch ;* but the condition of pregnancy was put beyond a doubt in less than a week afterwards by her expelling a fœtus of five months, and along with it its placenta quite perfect, and afterwards several fragments of a substance resembling decidua, mixed up with what appeared to be portions of placenta and membrane, but altered in their texture and consistence so as to possess the toughness of leather: these substances were in every respect totally different from any of the parts of undoubtedly recent formation ; the expulsion of them went on for fully half an hour after the rest of the process was completed, and portions continued to be discharged at intervals for some days, after which the patient recovered well: at the end of a month there was not a trace of uterine irritation or discharge, and she considered herself in better health than she had been for a year before.

A question of great interest and practical importance suggests itself here; could these extraneous matters have remained in the womb from the time of the former miscarriage? The affirmative I believe to be abundantly established by facts. A case occurred some years ago in Roscommon, in which parts of the skeleton of a former conception came away at the time of the next labour, and

[1] See Dublin Medical Journal, vol. vi. p. 418.

Harvey relates an instance of a similar kind, in which "a woman, after such a kinde of abortment, did conceive again, and was delivered at the just time. But a litle after,[1] as she went about her worke, being not in any great paine or distemper, she did eject by pieces the black litle bones which related to her former abortment. Some of these bones were brought to me, which I could discover to be the fragments of the spine, the bone of the thigh, and of other bones."[2] Such occurrences as the above suggest a consideration of great importance, namely, that a woman may expel parts of a fœtus or portions of an ovum without reproach, under circumstances which would, at first sight, imply a departure from virtue: thus, for instance, it might have been with M. S., or with the woman spoken of by Harvey, had they been separated from their husbands after the first miscarriage.[3]

Milk in the breasts.—The secretion of milk in the breasts is popularly esteemed as an infallible proof of pregnancy, but nothing can be more erroneous than such a presumption, which is contradicted by facts, recorded on the best authority, proving the possibility of its formation under circumstances totally independent not only of pregnancy but even of intercourse, at ages antecedent to puberty, and after the cessation of the generative faculty.

Perhaps the most remarkable case on record is that of the little girl of Alençon, who was produced by Baudelocque[4] before the Royal Academy of Surgery on the 16th October, 1783, where she milked her breasts in presence of the members. This girl was only eight years old, and the secretion was caused by the repeated application of an infant which her mother was suckling at the time.

Belloc[5] mentions a servant girl, who, being obliged to have sleeping in her chamber an infant which was being weaned, and which by its crying disturbed her rest, bethought her of giving it her breast to appease its clamour; and the result was that in a short time she had milk enough to satisfy the child.

The same phenomenon has occasionally occurred in women advanced in years. The following case is related by Mr. George Semple.[6] "Mrs. B. the wife of John Breward, Simpson Green, near Idle, aged forty-nine, the mother of nine children, the youngest of whom is twelve years old, lost a daughter-in-law about a year ago, who died in about a fortnight after giving birth to her first child. On her death Mrs. B. took charge of the infant, a little puny, sickly baby. The child was so fretful and uneasy, that Mrs.

[1] Interpositis aliquot mensibus."

[2] Generation of Animals, Ent's translation, p. 480: 4to. ed. 1786, p. 547.

[3] This subject will be fully noticed in the chapter on substances expelled from the uterus.

[4] Art d'Accouchement, tom. i. p. 188, ed. 1822.

[5] Cours de Méd. Légale, p. 52; see also Foderé, Traité de Méd. Lég. vol. i. p. 440.

[6] North of England Med. and Surg. Journ. vol. i. p. 230.

B., after several sleepless nights, was induced to permit the child to take her nipple into its mouth. In the course of from thirty to thirty-six hours she felt very unwell, her breasts became extremely painful, considerably increased in size, and soon after, to her utter astonishment, milk was secreted and poured forth in the same abundance as on former occasions after the birth of her own children. The child, now a year old, is a fine, thriving, healthy girl, and only a few days ago I saw her eagerly engaged in obtaining an apparently abundant supply of healthy nourishment from the same fountain which nearly twenty years ago poured forth its resources for the support of her father." Several other instances still more remarkable are on record.[1]

The secretion of milk in the breasts of men under a like stimulus has been testified on authority[2] free from doubt or suspicion, and is here only referred to as an argument, *à fortiori*, in favour of its formation in women under circumstances distinct from pregnancy. And John Hunter has shown that it is natural to the males of the dove and pigeon tribe to have during the period of incubation, a change effected in the internal surface of the crop, from which a nutritive fluid is secreted, with which they assist in feeding the young birds.[3] A source of deception will occasionally present itself in women who after nursing retain milk in their breasts for an unusual length of time. A patient of mine after weaning her last child, which she nursed for fifteen months, retained for nearly three years[4] so much milk in her breasts that she was obliged to adopt precautions to save her dress from being wet by it, and for two years afterwards she could still express a little milk from the nipples. The child is now more than eight years old; the mother has not since conceived, but has always menstruated with the greatest regularity, contrary to the rule laid down by Hippocrates, that if a woman who is neither pregnant nor recently delivered has milk in her breasts, her menses are absent.

[1] See Smith, Forensic Medicine, p. 484. Philos. Trans. vol. ix. p. 100, and vol. xxxi. and xli. Capuron, p. 126. Beck's Medical Jurisprudence, 5th ed. p. 121, note. Coxe's Medical Museum, vol. i. p. 267. Med. Chir. Review, vol. xvii. p. 201, where there is a collection of several cases of preternatural lactation, by Dr. Kennedy, of Ashby-de-la-Zouch, to which he has himself added one of a woman who for forty-seven years after the birth of her first child continued to give suck uninterruptedly, nursing six children of her own and eight others; *she menstruated regularly* during lactation, and up to her eighty-first year had still a moderate secretion of milk: the details of this case are particularly well worth perusal.

[2] See case by the Bishop of Cork, Philos. Trans. vol. xli. p. 813. Another by Humboldt in his Personal Narrative. And a still more recent one by Captain Franklin in his Journey to the Polar Sea, of a young Chippewan, whose wife died in labour. "Our informant," he adds, "had often seen this Indian in his old age, and his left breast, even then, retained the unusual size it had acquired in his occupation of nurse."

[3] Observations on the Animal Œconomy, p. 235.

[4] Dr. Blundell mentions a similar case, op. jam cit. p. 160.

Dr. Francis, in his edition of Denman,[4] mentions, on the authority of Professor Port, that "a lady of this city (New York) was, almost fourteen years ago, delivered of a healthy child; since that time her breasts have regularly secreted milk in great abundance, so that, to use her own language, she could at all times easily perform the office of a nurse. She has uniformly enjoyed good health, is now about thirty-five years of age, and has never proved pregnant a second time, nor had any return of her menses."

Dr. Blundell says that in the Ethiopian variety of mankind the breasts are very active, and his friend Dr. Chapman gave him the case of a negress of Demarara who after her pregnancy formed milk for twenty years together.[2]

"We see," says Foderé, "women who have milk in their breasts from one pregnancy to another, and even for whole years together, although they have not nursed." And he adds that he has had repeated opportunities of observing the secretion of milk take place on the cessation of the catamenia at the turn of life, of which fact he quotes two striking instances;[3] an occurrence which we shall have frequent occasion to notice, as connected with a train of very peculiar symptoms originating in disturbance of the uterine functions and affecting the system in a remarkable manner.

It has been already remarked that morbid causes capable of distending the cavity of the uterus may excite the sympathetic changes in the breasts, and it appears that even the secretion of milk may be thus induced, as happened in two cases mentioned by Frank, where it occurred in one in consequence of physometra,[4] and in the other from hydrometra[5]. Moreover, we learn from facts, some of which have been already noticed, that excitement of the sexual system without conception, is occasionally followed by some of the sympathetic actions or changes which would naturally accompany or follow pregnancy, as when suppression of the menses takes place soon after marriage, and is followed by morning sickness and fulness of the breasts;[6] and amongst the inferior animals who have periodical fits of sexual appetence, during which the uterine excitement is intense and overwhelming, completely subduing their whole system for the time, we sometimes see instances in which, either after unfruitful coition or without any previous intercourse with the male, milk has formed in the teats, and other symptoms indicative of pregnancy, and even of parturition, have been observed. Thus Harvey speaks of such a state observed in bitches, which, having admitted coition without success, yet afterwards appeared in distress at the time their gestation would have been terminated had

[1] Francis's Denman, p. 229.
[2] Principles of Obstetricy, p. 160. By far the most remarkable case of this kind is Dr. Kennedy's, just referred to.
[3] Médecine Légale, tom. i. p. 440–1 and note.
[4] Vol. iv. p. 50. French Translation.
[5] P. 182, ibid. See also Schmitt, 2d case 1st div.
[6] See cases already referred to, pp. 30, 31.

they conceived; "nay, some of them," says he, "have milk or beestings (as they are called) in their teats, and are obnoxious to the distempers incident to those which have really puppied."[1] The following fact came under my own observation. A friend of mine had a favourite and very valuable sporting bitch which he was anxious should not breed, in order to prevent which she was always carefully locked up whenever she became in heat, so that intercourse with the dog was prevented, but on several occasions when the time expired which would have been that of her bringing forth had she been allowed to breed, she was observed to be very dull, to wander about the whole day as if seeking for something, and presently afterwards her teats used to fill with milk in such abundance as to drop from them on the ground.

Notwithstanding, however, the exceptions established by such facts as the foregoing, we should attach great consequence to the presence of milk in the breasts, and if found in connection with others of the rational symptoms of pregnancy, it ought to go a great way in confirming our belief in the existence of that condition, especially if occurring in a woman who had never borne a child or been pregnant before; but altogether it is a sign which we cannot expect to make in general available as a guide in forming our opinion in a doubtful case; because, in most instances, milk is not secreted until after delivery, and when it does form during pregnancy, it is not until a period has arrived which presents other modes of judging less liable to uncertainty.

CHAPTER V.

QUICKENING AND MOTIONS OF THE FŒTUS.

I wish, in the first place, to observe that I use the word quickening reluctantly, and only in compliance with a long-established usage, because in its literal and proper meaning it was adopted from the old and barbarous idea that, at a certain period of gestation, life was suddenly infused into the fœtus,[2] an error which the continued use of the term is obviously calculated to foster and prolong. I would then be understood as meaning by it no more than the first sensation

[1] Ent's Translation, p. 540, ed. in 4to. of 1766, p. 593, tom. ii.

[2] Hippocrates maintained that the male fœtus became animated in thirty days after conception, while the female required forty-two. The Stoics considered the fœtus as inanimate during the whole period of utero-gestation, which opinion prevailed until the time of Antonius and Severus, when it yielded to the more popular doctrine of the sect of the academy, who maintained that the child became animated at a certain period of gestation. In modern times, Zacchias proposes sixty days as the limit. Vide Beck's Medical Jurisprudence, pp. 214, 15.

experienced by the mother, of the life of the child within her womb, and not that the child then becomes, for the first time, endowed with life; which is, however, the notion still generally prevalent in society.

It appears very unaccountable that such an absurdity should have received not merely the sanction of popular belief, but that it should form the grounds of law in most civilised countries, our own not excepted; for the English law adopts the distinction, and considers the fœtus before quickening as inanimate, or merely as *portio viscerum matris*, but as afterwards endowed with life; and on this principle acts in the award of punishment for crime. Thus in a law enacted in 1803, called the Ellenborough act, it is ordained that if any person shall wilfully or maliciously use means to cause or procure abortion in a woman *not quick with child*, he shall be declared guilty of felony, and may be fined, imprisoned, set in the pillory, publicly whipped, or transported for any term not exceeding fourteen years; but if the offence be committed *after quickening*, it shall be punishable with death.

This law has been, and I think justly, designated as immoral, unjust, and irrational; as tempting to the perpetration of the same crime at one time, which at another it punishes with death; while, in the words of the admirable Percival, "to extinguish the first spark of life is a crime of the same nature, both against our Maker and society, as to destroy an infant, a child, or a man; these regular and successive stages of existence being the ordinances of God, subject alone to his divine will, and appointed by sovereign wisdom and goodness, as the exclusive means of preserving the race and multiplying the enjoyments of mankind."[1]

In like manner, when a woman pleads pregnancy in bar or stay of execution, the court orders an investigation as to whether she is *quick with child* or not,[2] for being merely pregnant will not be sufficient;[3] and if she be pronounced *quick with child*, execution shall be stayed until either she is delivered, or proves by the law of nature not to have been with child at all. In France and Scotland the law is at once more merciful and more consistent with the laws of nature and with common sense, when it provides that "if a woman condemned to die states that she is pregnant, and it be

[1] Percival's Works, vol. ii. p. 430, 1.

[2] A jury of matrons is the tribunal appointed by law for the determination of this difficult and vital question, but it is to be hoped that the legislature will now intrust it to competent persons, and not risk again a repetition of such a blunder as occurred at Norwich in 1833, for a full account of which most interesting case, see Lond. Med. Gazette, April 6, 1833.

[3] "Here again the law of the land is at variance with what we conceive to be the law of nature; and it is at variance with itself, for it is a strange anomaly, that by the law of real property, an infant *en ventre sa mère* may take an estate from the moment of its conception, and yet be hanged four months afterwards for the crime of its mother." Paris and Fonblanque, vol. iii. p. 141, note.

proved that she is so, she shall not suffer punishment until after her delivery."[1]

It is perfectly monstrous and absurd to suppose for a moment that the fœtus does not enjoy vitality from the first moment of its existence, and of course long before the sensation of quickening is felt by the mother; and if it be asked why no indications of life are given before the time at which quickening generally takes place, the obvious answer is, that the absence of any consciousness on the part of the mother relative to the motions of the child is no proof whatever that such motions do not exist.[2] Of this fact the writer can speak with certainty, having now, in several instances, by applying the hand to the abdomen, distinctly felt the motions of the fœtus in utero, while the mother had no perception of them, at the moment that they were perceptible to my hand, and this has happened both before and after quickening. It is very difficult to account for, but certainly not less important than singular; and from the number of times I have met with it, I regard it as of frequent occurrence; the following was a remarkable instance of the kind:—Some years ago a married lady, who had menstruated for the last time on the 10th of November, came to Dublin in March, on the 21st of which month a consultation was held to determine whether she was labouring under a disease of the womb or not, as she had been previously assured by her medical attendant, that she could not be pregnant because she had not felt the child, nor had sick stomach, with which she had always been much distressed in former pregnancies. On examination, the writer distinctly felt, through the abdominal parietes, the limbs of the fœtus in motion, as did also Mr. Cusack and Dr. Marsh, and yet the lady herself had no consciousness whatever of any such sensation, nor did she *quicken* till the second week of the following month, April, and was delivered of a healthy boy on the 9th of August. In addition to considerable pelvic pain and irritation of the bladder, with very sedimentous urine, the symptom which had excited the greatest alarm in this lady's case was one which, at the time, I had never met with, but have seen two or three other instances of it since; for about a month previous to her coming to town, she was occasionally sensible of pain in the right iliac region, and at the same time a firm tumour could be felt *gathering*, as she expressed it, in the seat of the pain; and both were considered as the effect of disease. During our visit this happened, and I had an opportunity of examining it, and ascertained that it arose from partial spasmodic contraction of some of the uterine fibres about the right cornu, probably having its seat in the orbicular muscle which surrounds the orifice of the fallopian tube. I kept my hand in contact with the hard tumour thus formed, until

[1] Code pénal, art. 27. See Foderé, tom. i. p. 428. See observations in chapter ii. p. 32.

[2] Vide Beck's Medical Jurisprudence, p. 216, ed. 5th; Gardien, Traité des Accouchemens, tom. i. p. 508; and Frank, Epit. Hom. Morb. Cur. de Retentionibus, lib. vi. p. 303.

it gradually relaxed and softened down, so as not to be any longer distinguishable from the rest of the uterus, which lay in the right iliac hollow. This had never occurred in any of her former pregnancies, nor did it in any of three subsequent ones.

It may be observed here that the facts of this case are completely in opposition to the explanation of quickening given by Dr. Royston and others, who suppose it to be coincident with, and resulting from, the sudden ascent of the uterus out of the pelvic cavity, for here the uterus could be distinctly felt in the abdomen, and the child within it, and yet the lady did not quicken for nearly three weeks after.

In attempting to make a knowledge of this phenomenon available in any enquiry as to the existence of pregnancy, even where there cannot be supposed any intention or motive on the part of the woman to deceive, we obviously labour under this disadvantage, that except we are at the time able to feel the motions of the child, we can have no evidence except her statement as to the fact of quickening or otherwise; and nothing is more certain than that she may be completely mistaken on both sides of the question. I have just mentioned a case in which motion of the child perceptible to the hand of another, was not felt by the mother; and several other instances of the same kind have occurred to me. On the other hand, the examples of women who have supposed, and firmly believed, that they had quickened when no such thing had occurred, are numerous even to notoriety. I remember being some years ago called in great haste to see a lady, the mother of seven children, who was said to be in premature labour at seven months and a half, accompanied with hemorrhage. On my arrival, her husband, who was a physician, mentioned, among other things, that she had quickened at four months and a half, and had from that time continued to feel the child as distinctly as in any of her former pregnancies, adding *that he had himself repeatedly recognised its movements;* on examination, however, I could discover no child in utero, and the case terminated in the expulsion of a few coagula from the uterus without any fœtus whatever.

A mistake of this kind is seriously interwoven with the history of England as having occurred in the person of Queen Mary, who was so certain of having felt the child stir in her womb, that despatches were sent to inform foreign courts of the joyful event,[1]

[1] This circumstance is thus noticed by Hume. "The queen's extreme desire of having issue had made her fondly give credit to any appearance of pregnancy; and when the legate was introduced to her, she fancied that she felt the embryo stir in her womb. Her flatterers compared this motion of the infant to that of John the Baptist, who leaped in his mother's belly at the salutation of the Virgin. Despatches were immediately sent to inform foreign courts of this event; orders were issued to give public thanks; great rejoicings were made; the family of the young prince was already settled; for the catholics held themselves assured that the child was to be a male; and Bonner, bishop of London, made public prayers be said, that heaven would please to render him beautiful, vigorous, and witty. But the nation still remained somewhat incredulous; and men were persuaded that the queen

but it turned out to be only the effects of bad health and the commencement of a dropsy; which disappointment, conjoined with other annoyances of a domestic nature, so irritated the queen that she totally lost her temper, and was guilty of some disgraceful acts of unjustifiable severity.[1]

The length of time during which a patient or her friends will cherish a delusion of this sort would be incredible, if we had not the proofs before our eyes. In the course of the last year a case was submitted to me for an opinion, in which the fœtus was supposed to be extra-uterine, and its motions to have been constantly felt both by the patient and her medical attendant for *nine years*. I do not, however, mean to have it inferred that we should not pay attention to the statements of married women on this subject: on the contrary, we should attach great value to the assertion of a person who has already, and perhaps repeatedly, experienced the sensation, and has, at the same time, no conceivable reason for wishing to deceive; but for the reasons already stated, we cannot yield implicit credence to such representations; they may be mistaken, or they may have strong and powerful motives to misrepresent, known only to themselves. In cases of criminal, or even ordinary legal investigations, there is always a motive to influence the representations made by the woman, and we can only give credence in proportion as the account may appear to us to correspond to other circumstances or conditions of the case, of which we are satisfied. Should we be able to feel the movements of the fœtus, of course we could have no doubt on the subject; but it must not be forgotten that such an examination is liable to be unsatisfactory, or even lead us into error if great caution be not observed. It may be unsatisfactory, because it not unfrequently happens that even in women who have really quickened, and have been for several weeks conscious of the motions of the fœtus, we are unable either to feel the child or recognise its movements, even though every circumstance of the case should be natural and healthy, and should there be any anomalous or morbid condition co-existing, the difficulty may be amazingly increased; thus in a case in which ascites was combined with pregnancy, advanced to the seventh month, it was found impossible to feel the child by any mode of examination that could be adopted, though it was made with great care, both internally and externally, by the writer, and by one of the most experienced practitioners in Dublin. This case gave rise to great embarrassment, and recourse was repeatedly had to the application of the stethoscope in the most

laboured under infirmities which rendered her incapable of having children. Her infant proved only the commencement of a dropsy, which the disordered state of her health had brought upon her." Hume's History of England, ch. xxxvi.

[1] "The indifference and neglect of Philip, added to the disappointment in her imagined pregnancy, threw her into deep melancholy, and she gave vent to her spleen *by daily enforcing the persecutions against the protestants*, and even by expressions of rage against all her subjects." Ibid. ch. xxxvii.

skilful hands; but neither the pulsation of the fœtal heart nor the placentary murmur could be heard, though it happened that several times during our examinations, the woman assured us that she was at the moment sensible of active movements of the child. The presence of an abdominal tumour, especially if large or attached to the uterus, sometimes renders the fœtal movements both very difficult of detection by the hand of the examiner, and very slightly perceptible to the mother, as in the case already alluded to.[1] Occasionally circumstances, whose influence it would be very difficult, if not impossible to explain, appear to have the power of suspending fœtal motion, without, however, inflicting any injury on the child: as in the two following instances, in one of which a strong mental emotion, and in the other, a fall, was followed by a cessation of these movements. A lady, some years married without having a child, on the birth of which, however, the succession to a large property depended, at length became pregnant, quickened at the usual time, and went on well up to the seventh month, when intelligence was suddenly communicated to her of the death of one she greatly loved, which produced a great shock,[2] followed by repeated faintings, and for several days she felt no motion of her child, which had been previously distressingly active. She now became miserably unhappy, was convinced that the shock had killed the child, blamed herself for having given way to it, and was in short in a state bordering on distraction. Under these circumstances I was requested to see her, for the purpose of ascertaining whether the child was really alive or not: by the most careful manual examination no motion could be detected, but on applying the stethoscope I heard distinctly both the placental murmur and the pulsations of the fœtal heart: shortly afterwards the child resumed its former activity, and in proper time was born alive and healthy. In the other case, a lady, in the eighth month of pregnancy, in crossing the top of a staircase in the dark, slipped her foot, and was precipitated to the bottom, striking her side forcibly against the hand-rail: she was much hurt and greatly frightened: it was on the eighth day after the accident that I was called to see her, when I found her fully impressed with the belief that the child was dead, as she had completely ceased to feel its movements since the day of the fall: during my examination, however, these motions returned, apparently from my disturbing the position of the child, which was afterwards born alive and vigorous. I may observe here as a point of diagnosis, that in both these instances I felt almost convinced before-hand that life had not been extinguished in the child, because no alteration had taken place in the state of the abdomen, and the breasts maintained their size, firmness, and sensibility.

Desormeaux tells us of a patient of his who felt her child at the ordinary period, and its movements continued remarkably strong

[1] See Dublin Med. Journal, vol. vi. p. 421, 22.
[2] See General Observations, chapter i. p. 14, et seq.

for three weeks, after which they ceased for a whole month, and nothing could excite them: the child was born alive and healthy.[1] In Schmitt's ninth case, second division, the patient felt nothing but a kind of throbbing above the pubes up to the end of the seventh month, and during the remaining two no sensation of motion whatever was experienced,[2] yet the child was born alive and well. In this case there was scarcely any liquor amnii in the uterus, which was moreover almost as hard as scirrhus, which circumstances, together with some others, formed a combination rendering pregnancy doubtful, *even after the labour had begun.*

On the other hand very experienced and competent judges have fallen into the error of supposing that they had felt these movements in women who in reality were not pregnant at all; two instances of which came under my own observation, and Dr. Dewees relates a very marked instance of such an error occurring to himself. A young lady had her menses suppressed for several months; her belly swelled very much, the breasts became enlarged, she had nausea and vomiting in the mornings; in short she had all the usual symptoms of pregnancy. "Examining the abdomen carefully," says Dr. Dewees, "I found it considerably distended; there was a circumscribed tumour within it, which I was very certain was an enlarged uterus. While conducting this examination, *I thought I distinctly perceived the motion of a fœtus.*"[3] The case eventually proved to be one of accumulation of menstrual fluid in the uterus.

In a case of abdominal tumour examined by Dr. Ingleby,[4] he says he was misled by a distinct crawling movement perceptible within it; and the same patient had had some time before, what were considered strong symptoms of pregnancy, with very sensible movements resembling those of a fœtus, but the discharge of a quantity of fluid per vaginam put an end to the delusion. The causes of these false sensations are not few: in many they are produced by air in the intestines passing quickly from one part to another; in others, they seem the effect of nervous irritability, and are observed to happen most frequently in hysterical females; sometimes they are produced by a spasmodic twitching of some of the abdominal muscles, or a partial contraction of those of the uterus when distended with air or fluid.[5] In some instances the pulsation of the great arteries has been the source of the delusion, especially when felt acting on a tumour, as in the case of an enlarged ovary; but from whatever cause arising, there are two curious facts to be noticed concerning these motions; first, that they are not only perceptible by the woman herself, but easily recognised

[1] Dict. de Médecine, tom. x. p. 399.
[2] See also La Motte, Obs. xxv.
[3] Essays on several subjects connected with Midwifery, pp. 337, 8.
[4] Dublin Medical Journal, vol. vi. p. 356.
[5] See Gardien, tom. i. pp. 542, 562, and Harvey's case of the noble matron. p. 481 of Ent's Translation.

by others, and not only by the application of the hand, but they are also occasionally visible[1] externally like the true ones; secondly, that in several such cases there has been, at the termination of the imaginary period of gestation, an accession of pains strikingly resembling those of labour;[2] the facts of three cases are fresh in the writer's recollection, in which, under such circumstances, he was brought to attend patients in labour, who were not pregnant: it may be added here, in the way of a general observation on these false motions, that when a woman who has been pregnant before, especially if she has been so frequently, and is again exhibiting equivocal symptoms of that condition, declares that the sensations of motion now experienced are totally unlike those formerly felt by her, such dissimilarity should be regarded as suspicious, and detracting from the probability of her being healthily pregnant, if so at all.

Another source of error would of course be found in a power which it is asserted some women possess of simulating the motions of the child by certain actions of the abdominal muscles. The writer never met with any such case; but Dr. Blundell, who mentions the fact,[3] tells us of a woman who was seen by the late Dr. Lowder and other eminent accoucheurs, who simulated these movements so exactly, that, had they judged from this sign alone, and not made an internal examination, they would have pronounced her pregnant. The mock prophetess, Joanna Southcott, had also acquired this accomplishment, which appears greatly to have assisted her in carrying on her imposture, by enabling her, when examined, to imitate the fœtal movements, and that too in different parts of the abdomen.

We must now turn our attention to the period of pregnancy at which we may in general expect that this phenomenon shall have occurred, and then to the kind of sensation which the fœtal movements may be expected to communicate to the feelings of the mother or to the hand, at different periods of utero-gestation. Experience has shown that it happens from the tenth to the twenty-fifth week; but according to my experience, the greatest number of instances will be found to occur between the end of the twelfth and sixteenth weeks after conception, or, adopting another mode of calculation, between the fourteenth and eighteenth week after the last menstruation, which very nearly agrees with the statement of Dr. Hamilton,[4] grounded on forty years' experience, that quickening "takes place at the end of four calendar months after conception." The result of Rœderer's investigation of this point was, that of 100

[1] See Schmitt's third case, first division, and Gardien, tom. i. p. 543.

[2] See Harvey's case of the physician's daughter, p. 480; Schmitt's thirteenth case, first division, and a very remarkable one by Klein, Journal der practischen Heilkunde; herausgegeben von Hufeland und Harles; 1815. Band. 2. s. 3.

[3] Op. citat. p. 156.

[4] Pract. Obs. part i. p. 135.

women, 80 quickened at the fourth month, that is, four out of five; of the remaining twenty, some quickened at the third, and some went to the fifth. I believe there are some individuals in whom quickening takes place almost exactly at the same period in several successive pregnancies; a well-marked instance of this occurred to me last year in a lady who had given birth to seven children: in August she told me that her last menstruation had terminated on the 10th December, that she had quickened on the 10th of April, and would require my attendance on the 10th of September; because in all her former pregnancies labour had supervened exactly five months from the day of quickening; she was delivered on the 9th Sept. I have met with a few other instances of the same kind; but the occasional occurrence of such coincidence ought to be regarded as the exception to the general rule, that the time of quickening will, in the majority of cases, be found to vary in the same person in successive pregnancies: and it is important that this should be understood, because a contrary belief constantly leads patients to assign a particular time for their labour, in which they are afterwards disappointed; and sometimes the non-occurrence of quickening at the expected time has given rise to doubts as to the existence of pregnancy, or to a belief that the symptoms were those of disease, as in the case of the lady, p. 52.

Under ordinary circumstances, when quickening does occur, but especially if it happens in conjunction with the sudden ascent of the uterus out of the pelvis, the woman is apt to feel an unusual degree of nervous agitation, which not unfrequently ends in faintness or even complete syncope, after which she is sensible of a slight fluttering sensation, which from day to day becomes more distinct, until she fully recognises the motions of the child.

The earliest instance of which I was certain was in the case of a lady, who must have conceived on the 10th of November, and she quickened on the 28th of January, the interval being eleven weeks and two days, and 201 days before delivery, which occurred on the 17th August: and in another case which I met with since, quickening was felt on the 27th September, and labour took place on the 13th April, the interval being 198 days: while in the same lady's former pregnancy the interval was only 163 days, or dating from conception, it took place in the one instance in the twelfth week, and in the other in the seventeenth. Dr. Hamilton[1] knew of its happening in the eleventh week.

An idea prevails almost universally in society that quickening takes place exactly at the middle of gestation, and that labour ought to occur four months and a half afterwards, but in far the greater number of cases the interval amounts to or exceeds five months. Some, on the other hand, do not quicken until much later periods of gestation; the writer is in the habit of attending a lady who has,

[1] Op. citat. p. 175.

in seven successive pregnancies, felt the child for the first time in the sixth month, and once in the seventh. Baudelocque mentions that some of his patients did not quicken until after the sixth or seventh month, and, "in one of these women," he adds, "whatever we could do, and notwithstanding the very obvious ballottement of the child in utero, which we could perform by a finger introduced into the vagina, its motions could not be ascertained either by the mother or the accoucheur who examined her, till the end of the seventh month."[1]

"There are some cases," says Johnson, "where the motions are not felt till near the end of the reckoning."[2]

It is asserted by some that certain accidental states of the maternal system, such as plethora, whether general or affecting the uterine circulation, have the effect of postponing the sensation of quickening, and of rendering it much less distinct.[3] I will not venture to affirm or deny the relation here supposed, but there appears an obvious coincidence between such a principle and the facts of a case recorded by Schmitt, in which the woman, who had been three times pregnant, had never quickened until after being bled,[4] a practice which Desormeaux and La Motte recognise[5] as productive of such an effect under similar circumstances. When pregnancy happens to be complicated with ascites or with dropsy of the amnion, the motions of the child are not in general felt by the mother till a later period than usual, and are then perceived less frequently and less distinctly than in other cases, but it is quite erroneous to assert, as some have done, that under such circumstances these movements are not experienced at all; it is, however, perfectly true that by the hand it may be found impossible to detect them, as in case, p. 55.

A fact much more remarkable than the occasional postponement of this occurrence is its total absence during the whole period of gestation, notwithstanding the subsequent birth of living and healthy children. Two instances of this came under my own observation, and the fact is mentioned by several writers of authority. Levret speaks of a woman who felt no motion of her child in two successive pregnancies. "I was several times consulted," says Baudelocque, "about a woman whose pregnancy appeared doubtful to her till the last moment, as well as to the physician, because the motions of the child could not in any way be perceived; and nothing that we could do even at eight months and a half could excite them; the child, however, was born healthy, and as strong as usual."[6] Gardien met with two such instances;[7]

[1] Art d'Accouchement, ed. 1822, pp. 205, 6.
[2] New System of Midwifery, p. 102.
[3] Velpeau, tom. i. p. 196; Desormeaux, Dict. de Med. tom. x. p. 399.
[4] Fifth case, first division.
[5] Loc. sup. cit. and La Motte, Obs. xxvii.
[6] See Heath's Translation, vol. i. p. 240. This was probably the case already related from Capuron, chap. ii. p. 34.
[7] Tom. i. p. 509. See also La Motte, Obs. xxvi. and xxvii.

and Gooch says on this subject, "there are cases, though rare, in which the child has not moved during the whole of pregnancy, although it has been born alive and vigorous: of this I have known one instance, and read of others."[1]

The most recently recorded case of this kind, of which I am aware, is a very remarkable one by Dr. Campbell, of Edinburgh, who "knew a lady, the mother of nine children, who, except in her first gestation, never had any feeling of movement after she quickened, and who, were it not for the gradual enlargement of the abdomen, would not have known that she was pregnant; but she was inanimate and passive as a polypus: and what was most singular, her progeny unhappily were as sluggish as herself."[2] The above is one of many instances in which the activity of the fœtal movements has appeared to correspond to the greater or less sensibility of the mother.

When we wish to feel or excite the motions of the child in utero, we may expect to succeed by adopting either such a manual examination of the abdomen as we are accustomed to make when examining for a tumour in that cavity, pressing with the hand backwards towards the spine, or from each side towards the centre; or by applying one hand firmly against the side of the uterine tumour, while we impress the opposite side quickly with the fingers of the other hand.

Sometimes the simple application of the spread hand over the front of the abdomen is sufficient for our purpose; at other times we shall best succeed by the sudden application of the hand, previously rendered very cold by immersion in water, or contact with a marble chimney-piece: this frequently has the effect of making the fœtus start, and communicate a very distinct sensation of its movements, the character of which will differ most materially according to the period of gestation at which the examination is made.

During the fourth or fifth months the sensation communicated to the mother or to the hand of the examiner amounts to little more than a slight pat or throb, sometimes scarcely more than a flutter, which is gone almost as soon as we are aware of its occurrence, and no pressure or other manœuvre of ours will probably induce a repetition of it: at such periods it may be well to remember that with many persons there are particular times of the day when these motions are most strongly and frequently felt; if this can be ascertained, we should avail ourselves of the circumstance, and select that hour if possible for making our examination. In the sixth and seventh months the distinctness of these motions is greatly increased, and we are conscious that the moving body has consider-

[1] Account of Diseases of Women, p. 203. Dr. Dewees also relates a similar case, "where the motions of the child were never perceived during the whole period of utero-gestation." Compendium of Midwifery, p. 105.

[2] Introd. to Midwifery, p. 489.

able bulk, and not unfrequently at this period by pressing inwards we can bring our hand in contact with it again and again, and feel it start away, or move through a space of an inch or two, passing underneath our hand with a rolling or gliding motion, which is in some cases most distressingly incessant, and harassing to the woman, even to depriving her of rest. In the last two months we have principally the rolling motion, though sometimes the position of a limb is changed with great quickness and force, which we can not only feel, but we may often without difficulty grasp the limb, which occasionally causes a distinct elevation of the abdominal parietes, so that it is not at all unusual at this period to find those movements visible through the ordinary dress of the patient. It is of importance that these varieties in the characters of the fœtal movements should be borne in mind, because our opinion should be influenced not alone by their mere existence, but also by their correspondence or want thereof, to the period of gestation indicated by other symptoms.

It is obvious that there are two species of movements of the fœtus which may thus be recognised, one of which depends on the exertion of its muscular power, and of course implies life; the other, the result of mere change of place or situation, effected by some external or other accidental agency, and capable of being recognised equally in the dead and the living fœtus:[1] this latter, which is more properly mobility than motion of the fœtus, may be most effectually ascertained by a manœuvre, generally known by the name of ballottement, for which, however, the term repercussion will answer equally well: this mode of examination I shall, in a future chapter, fully describe; for the present only observing that the latter kind of movements of the fœtus, which are usually called passive, occasionally give rise to very erroneous impressions in women who are carrying dead children. Thus I have been repeatedly told by patients in labour that they had continued to feel the child move up to the time they were taken ill or even after, and presently they have given birth to a child evidently dead for weeks.

CHAPTER VI.

ENLARGEMENT OF THE ABDOMEN AND STATE OF THE UMBILICUS.

An increase in the size of the abdomen being the necessary result of the development of the uterus from pregnancy, a careful examination of that part will be essentially required in every instance of an investigation as to the existence of that condition.

[1] These are usually distinguished by the terms *active* and *passive* motions. Schmitt proposed to call them organic and mechanical.

When conception occurs, and the ovum is received into the cavity of the uterus, the organ increases considerably in weight; and its fundus becoming at the same time developed, and presenting a broader surface for pressure from the superincumbent viscera, descends lower into the cavity of the pelvis, and so will not, for the two first months, or sometimes more, produce any enlargement of the abdomen by its increased bulk. Such an enlargement, however, is frequently observed at this early period, but it will be found on examination to arise from an inflated state of the bowels, which very generally takes place soon after the commencement of gestation, and continuing for some weeks may cause the patient to look as large or even larger in the second month, than she will a month afterwards when the tympanitic distension of the bowels has subsided: when this inflation does not take place the abdomen becomes at once flatter,[1] at first from the descent of the uterus and partly also from the increased absorption which so generally accompanies pregnancy: the umbilicus under such circumstances will sometimes be found more depressed,[2] and as if drawn inwards and downwards, in which condition it is occasionally the seat of an unpleasant and rather painful sensation of dragging, the part being also at the time somewhat tender on pressure; both this and the retraction of the part are apparently produced by the sinking of the uterus into the pelvis which draws down the bladder, and thereby puts the ligamentous connection between it and the umbilicus on the stretch:[3] the tenderness is frequently not confined to the part immediately about the umbilicus, but is felt over almost the entire surface of the abdomen, as we sometimes find it in hysteria; it is without any concurring symptom of an inflammatory kind, and appears to be most probably produced by the distension of the intestines.

This state, however, soon begins to alter; before the end of the third month the enlargement of the abdomen becomes obvious to the eye, and from this period continues to increase gradually from month to month, in the same proportion as the development of the uterus proceeds; while corresponding changes are effected in the state of the umbilicus, of which we shall speak in detail presently.

Such is the history of this change in the perfectly natural and healthy condition of the pregnant woman; but as there is, on the one hand, a host of causes which may produce enlargement of the abdomen, and be accompanied by several others of the symptoms of pregnancy when it does not exist; so, also, on the other hand, a

[1] "Mox post conceptionem uterus magis intra pelvim ita absconditur *ut abdomen complanetur*." Rœderer Elem. Art. Obst. p. 47.

[2] See Denman, p. 215, and Velpeau, tom. i. p. 182. The French have a proverb which says—

"En ventre plat
Enfant il y a."

[3] As happens in procidentia vesicæ, of which complaint this kind of pain at the umbilicus is by some considered as the diagnostic symptom: see Clarke on Diseases of Females, part i. p. 133.

woman may be with child, and yet the development of the abdomen not correspond to the period which has elapsed since conception.

When the enlargement proceeds from a gravid uterus, and four months of pregnancy have elapsed, if the patient be placed lying on her back, with the shoulders a little raised, and the limbs at the same time drawn upwards so that the thighs shall be in a state of semiflexion on the trunk, and the abdominal muscles thereby relaxed, if the woman be not very fat we shall be able to feel and trace the outline of the gravid uterus, at a height in the abdomen proportioned to the period of pregnancy; and even though we should not be able, from the fatness of the woman, the tension of the abdominal parietes, or any other cause, to feel distinctly the uterine tumour and define its circumference, we shall at least ascertain that the cause of the enlargement is something which renders the abdomen much more solid to the touch than is natural to that part, and an examination per vaginam detects the coexistence of the changes in the uterus, necessarily accompanying gestation, while at the same time the general health of the woman is found unaffected by any symptom of disease.

When the increased volume of the abdomen is the result of morbid conditions, not affecting the uterus, as disease of the liver, spleen, &c., an ovarian tumour, or ascites, we shall, in general, without much difficulty form our diagnosis from the history of the case, the length of time the enlargement has existed, (which may have greatly exceeded the whole term of gestation,) the general diseased condition of the system, the character and situation of the tumour, the state of the umbilicus and breasts, the total want of correspondence in the symptoms and conditions of the case if it were pregnancy: and, lastly, a vaginal enquiry assures us that the uterus is not enlarged. If the uterus itself be distended, the difficulty of forming our opinion may be considerably increased, but even then a careful consideration of the points just referred to, and a vaginal examination will, in almost every instance, enable us to decide correctly: one class of such cases has been already noticed.[1]

When the abdomen is distended by the accumulation of fat in the omentum or in the integuments, or by the inflated state of the bowels, the very soft and yielding condition of the part under the hand when pressed backwards towards the spine, and the total absence of any solid tumour, as well as of the ordinary symptoms of pregnancy, will form a sufficient basis for an opinion, which may be confirmed by the depressed state of the umbilicus, which in such cases is apt to be considerably sunk.[2] The degree to which this state of the abdomen may simulate the presence of an enlarged uterus or other solid tumour is almost incredible, but receives an

[1] Chap. iii.

[2] As remarkable instances of this see Schmitt's 7th and 8th cases, 1st division.

impressive illustration from such occurrences as that related in Mr. Lizar's work on ovarian tumours, where we find the case of a woman with an enlarged abdomen, attributed by some to pregnancy and by others to a tumour of the ovary, for the removal of which the abdomen was opened; when it was found that there existed no tumour of any kind, but a very fat omentum and intestines distended with air. Dr. Gooch saw a similar case[1] in which also the abdomen was laid open, when it was discovered that the enlargement "depended entirely on flatulence and fat;" more recently still was the disgraceful and melancholy case at Berlin, the particulars of which have been already detailed.[2] Perhaps the most extraordinary instance of this kind which ever attracted public attention was that of the antiquated virgin prophetess, Joanna Southcott, who, at the age of sixty-four, pretended to be with child by the intervention of superhuman agency, and actually deceived many of the profession, some of whom proposed to be present at her labour. She had enlargement of the breasts and abdomen, in which latter there was felt a circumscribed tumour, supposed to be the gravid uterus, and motions like those of a fœtus were perceived not only by herself but by some of the medical men who examined her, but the umbilicus, as remarked by Dr. Sims, was "sunk in, not at all protruded, as in pregnancy:" she died, however, without the promised consummation, and on dissection the womb was found smaller than natural, but healthy; the abdominal parietes contained four inches thick of fat, the intestines were distended with air, and the omentum, which was nearly four times its usual size, appeared "one lump of fat," but there was no trace of the tumour which had been felt during life, and which is supposed to have been produced by the prophetess having learned to retain the urine until the bladder became considerably distended, and to imitate the fœtal movements by a jerking motion of the abdominal muscles.

The enlargement of the abdomen from dropsy may give rise to the idea of pregnancy, but a reference to the general circumstances already adverted to as accompanying other morbid states, will generally prevent our falling into error, from which we shall be further protected by the consideration of some diagnostic signs peculiar to this disease, in which, besides the degree of fluctuation and the absence of any solid tumour, the form of the abdomen when standing and lying is different from that of pregnancy, in which the abdomen retains very nearly the same degree of prominence in both postures, but in dropsy it subsides, flattens down, and spreads out when the patient lies supine; in dropsy, also, the symptoms of constitutional disturbance increase with the size, while in pregnancy they diminish or cease. In ascites there is much thirst and scanty urine, which are not observed in pregnancy, in which

[1] Diseases of Females, pp. 230, 231.
[2] Chap. ii.

also the swelling of the feet is subsequent to that of the abdomen, but in dropsy is more usually observed before. But it must not be forgotten that pregnancy and dropsy may exist together, and, when they do, they may present a combination of circumstances of the most embarrassing description, under which our best guide will be a carefully instituted examination of the uterus per vaginam, and of the state of the breasts, especially the areola. It has been already observed, that in such cases the sensation of quickening is often deferred to a later period than usual, and is apt to be very indistinct, and we are liable to be effectually prevented from ascertaining the fœtal motions, or even the outline of the uterus by the excessive tension of the abdominal parietes and the quantity of interposed water, as in a case already related, where the difficulty was insuperable even at the seventh month.[1]

Again, it is a matter of common observation that there are women who, from their height or some peculiarity of form, exhibit their increase of size much more or less than others, so that the abdomen will appear less at seven months in one woman than it does in another at five, thus rendering any opinion formed from the volume of this part as visible to the eye, very likely to deceive; the principal of such causes are, the degree of prominence of the sacro-vertebral curve, the capacity of the pelvis, and the frequency of child-bearing. Dress also may be so managed as in a great degree to conceal the size.

The writer was once called on to attend a young unmarried female of respectability, whom he found in labour, and he was assured by her mother that up to that hour she never suspected that her daughter was pregnant, not having perceived any alteration in her size; and the young lady had danced all night at a ball about a week before her delivery: she had completed more than seven months.

It is perhaps still more important to recollect, that although pregnancy should exist, if the child die the development of the uterus will be arrested, and the enlargement of the abdomen will not continue to increase, but, on the contrary, will sometimes diminish, the dead fœtus being retained in utero for several months; and the patient, although really many months pregnant, may not exhibit any increase of size beyond what is natural to her; or, being near the end of her nine months, may not be larger than she was at four or five. The writer has seen some cases of this kind, which gave rise to great doubt. In the month of May he was requested to see a lady who considered herself in the eighth month of pregnancy, and was rendered miserably solicitous about her condition because she had irregular discharges from the uterus, and felt no motion of the child. On examination, her abdomen was found perfectly flat and even depressed, and no tumour of any kind could be detected in its cavity; but the uterus examined, per vaginam, was evidently en-

[1] See chap. v. p. 55.

larged and soft, and its mouth and neck had undergone the changes which accompany early pregnancy, the breasts were flaccid, and the areola had an imperfect faded appearance. The lady had begun to experience the symptoms of pregnancy in October, which continued till the beginning of January, when they suddenly ceased, and she became liable to vaginal discharges. All doubt about the case was solved shortly after the writer's visit by the expulsion of an ovum with a blighted fœtus, which had evidently not arrived at three months' growth, and during its long stay in the uterine cavity as an extraneous body had become encrusted with a reddish calcareous deposit.

Dr. Gooch relates the case of a lady to whom a similar circumstance occurred in two successive pregnancies.[1] There are then two conditions in which the size of the abdomen, instead of increasing, may diminish or remain stationary; first, about the second month of healthy pregnancy, when the inflation of the intestines subsides, and secondly, when the ovum being blighted, the increased vascular supply is withdrawn and the growth of the uterus arrested.

State of the umbilicus.—It has been already stated that during the first two months of pregnancy the umbilicus is rather retracted and more depressed than usual, in consequence of the descent of the uterus; but when this organ begins to ascend, the umbilicus gradually rises also, so that in the third month it is restored to its natural state, and in the fourth it is found less hollow than before conception; in the fifth or sixth it is nearly on a level with the surrounding integuments, and in the sixth or seventh completely so; and towards the close of gestation it projects in most persons considerably above the surface.

The production of these changes by the enlarged uterus suggests what we find to be fact, namely, that any solid tumour enlarging the abdomen may also be capable of effecting the elevation of the umbilicus; which circumstance, therefore, of itself can afford us no certain information that the distending agent is a gravid uterus. Yet I know from experience that a morbid tumour in the abdomen, of a size and elevation as great as those of the uterus in the seventh month, may co-exist with a perfectly depressed umbilicus; a striking instance of this I saw lately with Dr. Churchill, and I have thought that the reason probably was, that the tumour was prevented from pressing forward by adhesions, which are so constantly formed between such growths and the parts behind or around them: how far the fact observed will serve to establish a diagnosis I cannot venture to pronounce, but I do not know of any single instance in which the gravid uterus had acquired such a size without elevating the umbilicus; so that in any case in which pregnancy is supposed to be advanced to the seventh or eighth month, if we find the umbilicus depressed and the belly flat, it will prove

[1] Op. citat. p. 222.

certainly that gestation has not advanced to such a period; although it will not be, as asserted by Dr. Gooch, decisive evidence against the existence of pregnancy, which may be present, but not sufficiently advanced to effect the change, or the uterine development may have been arrested by the death of the fœtus. It has been already remarked that in the enlargements of the abdomen from flatulence and fat, the umbilicus is found more than usually sunk in; but of course we will not hazard an opinion until we have collected all the collateral evidence ascertainable in the case.[1]

CHAPTER VII.

CHANGES IN THE UTERUS—STATE OF THE OS AND CERVIX UTERI—SIZE OF THE UTERUS—ITS CONTENTS, SITUATION, AND CONSISTENCE.

Having thus carefully investigated the circumstances of the case as far as we can discover them by the report made to us, or infer them from the presence or absence of the usual symptoms or sympathetic changes already enumerated, we proceed in the next place to an examination of the uterus itself, having for our object to ascertain the following points:—the state of the os uteri and cervix; the condition of the organ with regard to development, and the degree to which it may be enlarged; the correspondence of such degree of enlargement with the other circumstances of the case; the cause of its increase, and the nature of its contents: on our successful investigation, or at least careful examination, of which points, conjoined with an inspection of the breasts, must be founded our most satisfactory and decisive kind of information; strong and plausible assertion, or an artful and well-arranged fabrication may mislead or bias our judgment, disease may simulate or conceal the condition of pregnancy, but with proper care we shall assuredly obtain our least fallible means of judging, from the changes in the breasts discoverable by the eye, and those of the uterus ascertainable by the hand, either through the parietes of the abdomen, or by the vagina; the latter or internal examination being often unnecessary if the two former have been well attended to.

1. *State of the os and cervix uteri.*—In the virgin and unimpregnated condition of the uterus, its mouth and the lower section of its neck, when examined by the finger introduced into the vagina, can be felt projecting into that cavity from a quarter to half an inch. The part so projecting feels remarkably firm, is

[1] On the value to be attached to the state of the umbilicus, see Gooch, op. cit. p. 209. Mauriceau, Malad. des femmes grosses, tom i. p. 93. Denman, Introduction, p. 215, 5th ed.

slightly tapering or conical in form, and about as large as the end of a man's thumb, having in its termination in the vagina a transverse opening, whose lips or margins feel firm and well defined. This may be so far open as to allow the extremity of the finger to be insinuated to the depth of an eighth of an inch, sometimes a little more, sometimes not so much; or it may merely communicate a sensation of a slight depression almost without a cavity, such as is felt when the tip of the finger is pressed between the lateral cartilages at the extremity of the nose. Sometimes the os uteri differs very considerably from this description, being almost imperceptible from its diminutive size, and perfectly circular, and it is not very rare to find it opening at once from the upper extremity of the vagina without any projection of the cervix uteri into that canal, which, to the finger, seems to taper gradually to a point, and there terminate in the orifice of the womb, the margins of which are very indistinctly felt. This form of the part is, I believe, in most cases produced by child-bearing, at least I have very seldom met with it except in women who had had a family.

When conception has taken place, all these characters begin to alter; the change from the natural condition above described being distinct in proportion to the period of gestation at which the examination is made. In order to fit the uterus for the reception of the ovum and its support, there is, very soon after impregnation, a greater supply of fluids directed towards it; its vessels, which before crept almost imperceptibly through its dense structure, and with their caliber completely constringed, become distended and carry blood; the cellular texture is loosened out, and its interstices are infiltrated with a greater quantity of fluid, in consequence of which the organ becomes not only altered in texture, but increased in size and weight. At this time, when the finger is applied to its vaginal extremity, the cervix is felt fuller, rounder, and softer or more springy and elastic under the point of the finger; and the same alterations having taken place in the labia of the os uteri, this part communicates a corresponding difference in the sensation received by the finger of the examiner: the margins of the orifice feel tumid, but softer and much less distinct, having lost the well-defined edge which, in the unimpregnated organ, is natural to them, and acquired in its stead a peculiar lubricity, in consequence of the increased secretion from the muciparous glandulæ in that situation: while the orifice itself, instead of seeming transverse, *feels* as if it were circular, because it has become more yielding, and admits the tip of the finger more easily and to a greater depth than in its former state. But it must be here observed that although these changes take place in a greater or less degree in all cases very soon after conception,[1] it will sometimes require a very practised hand to recognise them satisfactorily before the third month, when they

[1] "Le ramollissement de l'orifice est sensible *quelques jours* après la conception." Chambon, Malad. des femmes, tom. v. p. 32.

are in general sufficiently distinct, and from that time as pregnancy advances they become still more so, and further changes in this part may be appreciated, as affecting its form, structure, and position.

During the greater part of the first three months, besides the alteration already mentioned, the os uteri is felt lower[1] in the vagina, and not unfrequently prejecting a little forwards; but when the uterus has risen into the abdomen and left the cavity of the pelvis, as it does by the fifth month at farthest, sometimes a month earlier, its fundus leans forwards, and in consequence the os uteri is directed backwards; its margins are now felt very soft and relaxed, and we distinguish very generally within the circle of its orifice the cervical glandulæ slightly projecting, and feeling like little elastic smooth vesicles rolling under the point of the finger. This latter condition of the os uteri may sometimes be recognised as early as the beginning of the fourth month, but during the fifth it becomes particularly well marked in general, and affords, in my opinion, a very decisive criterion of the existence of pregnancy.[2]

We can now also introduce the finger with great ease to a considerable depth into the cavity of the cervix, owing to the very yielding condition of the labia of the os uteri. From this period, in consequence of the rapid development of the uterus, and the shortening of the cervix, the os uteri rises in the pelvis, and is of course removed farther and farther from the external parts, while, at the same time, the anterior projection of the uterus increasing, its mouth is in the same degree directed backwards; so that, if we examine in the eighth or ninth month, we reach it with difficulty, and must expect to find it in the direction of the upper part of the sacrum, while the head of the child presents itself towards the symphisis pubis and is plainly felt distending and pushing downwards the anterior and inferior segment of the cervix.

Still later, when gestation is drawing to a close, the orifice will often be hardly distinguishable, and when felt gives only the impression of an opening in a nearly flat surface, without any elevated margin, or at most very little, and feeling as a mere rugous opening in the mucous membrane of the upper part of the vagina; the difficulty of examining it is now greatly increased, first, by its height and distance from the external parts, and secondly, by the intervention of the tumour formed by the head lying in front of it, and when reached, an additional obstacle to its detection is sometimes found in the interposition of a portion of the anterior lip of

[1] "Ulterius in vaginam orificium descendit, ita ut *secundo tertioque* a conceptione mensibus, duabus saltem digiti phalangibus in vaginam demissis attingi possit, cum ante impregnationem integer digitus fuerit demittendus." Rœderer, Elem. Art. Obs. p. 15, 16, § 56.

[2] See Noortwyk, Uteri Humani gravidi Anatome, plate 1, and page 7, § 4, n. 4. W. Hunter's Plate xxvii. fig. 1, and Rœderer, Icones Uteri Hum. grav. tab. vii. fig. 1.

the orifice, which being longer than the posterior continues to be somewhat prominent, and to lie in some measure across the opening, an effect to which the anterior obliquity of the uterus contributes.

But we must recollect, when we come to form an opinion from the existence of such changes in the os uteri, that there are other conditions of the organ besides pregnancy by which they may be produced, so as to assume almost exactly the characters of those that accompany the earlier periods of gestation. Thus, for instance, the near approach of menstruation and the accompanying irritation of the uterus may (and we have had repeated proofs from an examination that it does) effect such a change in the form and texture of the os uteri.[1] The same thing will happen in a more marked degree, when the organ becomes from any cause enlarged, either by an increase of its substance, or, still more remarkably, when its cavity becomes distended by an accumulation of fluid within it, as of blood or water, or the presence of a diseased growth, such as a polypus or hydatids.[2] Moreover, in some women, especially those who have borne several children, and are of relaxed habit, the condition of the os uteri is at all times such as may but too easily impose on us, its labia being soft, tumid, undefined, and so much apart as to admit the point of the finger easily, especially during the time of, or just after, menstruation. On the other hand, however, there is one fact on the subject on which we may rely, viz., that inasmuch as pregnancy must always be accompanied with the physical changes of structure in the uterus already mentioned, should we find in a suspected or doubtful case, especially if supposed to be of four or five months' duration, the os uteri retaining distinctly the characters which have been described as belonging to it in its unimpregnated state, that is, its transverse orifice with well defined and firm margins, we may conclude with certainty that the woman is not with child.

The indications to be ascertained from the state of the cervix are amongst the most important and the least liable to error of any available to us, as they enable us not only to form an opinion as to the existence of pregnancy, but to determine in most instances with considerable accuracy the period of gestation. During the first four months the changes of texture by which the cervix is rendered fuller, rounder, softer, and more elastic when pressed by the finger,

[1] This quite coincides with Lisfranc's remarks on the condition of the cervix at the time of menstruation—"Il donne alors la même sensation qu'à deux mois de grossesse:" Maladies de l'Uterus, p. 17, and is moreover interesting as showing in how short a time increased determination towards the organ may produce in it a change of texture appreciable by examination.

[2] In introducing hydatids here, I do not mean to be understood as considering them distinct from pregnancy, from which I believe they always arise, but as distinct from the natural conditions of that state, and from the presence of a fœtus.

are all that we can expect to recognise as indicative of the altered condition of the part; for as yet the particular change of form and length has not taken place, the natural cylindrical shape still remaining unaltered. But in the fifth month, when the finger is passed along the cervix towards its upper end, it feels swelled out there, especially in front, and in fact its sides have begun to diverge from each other, and are becoming a part of the body of the uterus, which now feels nearer to us, so as to be more easily examined by the finger, while at the same time the cylindrical part of the cervix feels somewhat diminished in length. In the sixth month these alterations are still more distinct, and the narrow undilated part of the cervix is decidedly abbreviated, owing to a further portion of its upper end having been dilated and taken up, as it were, to form a part of the distended cavity containing the child; and this obliteration of the cervix from above downwards continuing to be gradually effected, while at the same time there takes place a progressive retraction of the portion of the cervix below its junction with the vagina, we find at length, if we examine towards the close of gestation, that the projecting cervix is no longer to be felt, but in its place there is detected, at the upper extremity of the vagina, a globular tumour, which is the enlarged uterus, with the head of the child to be distinctly recognised through its parietes. Such is the natural and usual order of these changes, but there is a particular deviation therefrom occasionally met with which is deserving of notice: it sometimes happens that the portion of the cervix below the attachment of the vagina and more immediately around the os uteri yields before the part above it, or middle portion, the texture of which is generally exceedingly close and resisting:[1] the consequence of this is that the os uteri becomes relaxed and expanded sometimes several weeks before the organ is prepared to expel its contents; a condition which has often given rise to an erroneous belief that the woman was either actually in labour or on the point of being so.

It is usual to state the abbreviation of the cervix by exact proportional parts, and thus it is said that during the sixth month it loses one quarter, that in the seventh it is only one half its original length, that in the eighth only one quarter remains, which in the ninth month is reduced to an eighth, which is obliterated before the end of that month. Now all this may be true in very many cases, and I believe it is so, but we can derive from it little or no practical benefit; such precision is only available with a uterus in a preparation or on a dissecting table, but not in the examination of a living woman, where, except we had a previous knowledge of the length of the part before impregnation, we could not tell the exact proportion of it which has been obliterated, and nothing is more certain than that there is great variety in this respect in different indi-

[1] See Desormeaux, Dict. de Méd. tom. x. p. 377. Rœderer, Elem. Art. Obstet. p. 17, § 60.

viduals, some women having the cervix double as long as others; owing to which, and also to the fact that this part, though of the ordinary length and healthy, yields much more slowly in some than in others, it happens that more of it will be found undilated in one woman at the eighth month than in another at the sixth:[1] this will be, cæteris paribus, most likely to happen in first pregnancies: and hence it is that we not unfrequently find a portion of the cervix amounting to nearly a quarter of an inch undilated and projecting at the commencement of labour, while at other times the whole cervix is obliterated, and the os uteri considerably opened one, two, or three weeks before delivery.

Hence this abbreviation cannot always be relied on alone as a sufficient evidence, although in general a correct indication, of the period to which pregnancy has advanced, in order to determine which we should assist our judgment, 1st, by a general review of all the rational or other signs which have been observed, and 2dly, by ascertaining carefully the height to which the uterus has risen in the abdomen.

2. *Size, situation, and consistence of the uterus.*—When conception has taken place, the uterus, in consequence of the new action already described, almost immediately begins to increase in size, generally in every part, but especially at the fundus. Here the cavity begins to increase its capacity, to enable it to receive and accommodate the ovum; which being accomplished, the upper part of the organ continues to increase in size and proportion to the growth of its contents. The fundus is first developed, then the body, and lastly the cervix; the latter part not being affected by the process of expansion until about the sixth month. During the earlier months, therefore, the finger introduced per vaginam cannot reach sufficiently far to arrive at, and detect the development which has taken place in the upper part of the uterus; and as the increase of size in the organ is not as yet such as to prevent its being accommodated within the pelvis, it cannot be detected by examining through the parietes of the abdomen; wherefore, during this period, which extends through at least the first three months, the degree of development of the organ is difficult to ascertain, but becomes gradually more easy of detection as pregnancy proceeds and the uterus enlarges. In general, in the fourth month, the fundus of the uterus may be felt, especially in a thin person, above the anterior wall of the pelvis, which it overtops considerably by the end of that month, and inclines to one or other side, most frequently to the right.

During the fifth it rises to half way between the symphisis pubis and the umbilicus; and if an examination be made per vaginam,

[1] "The examination of many," says Dr. Gooch, "has taught me, that the neck of the uterus is as much altered in some women at the fourth month, as in others at the sixth, especially in those who have had several children, in whom the neck yields more readily than in first pregnancies." Diseases of Females, p. 214. See also Smellie, vol. i. p 185.

we can detect the enlarged body of the uterus, which we encounter when we attempt to pass the finger between the anterior part of the cervix and the inside of the symphisis pubis,—a situation in which, when a woman is not pregnant, and even during the earlier periods of pregnancy, we are not able to feel any thing. At this period, also, we may at the same moment feel the fœtus by ballottement, as described in the next chapter. In the sixth month the uterus rises as high as the umbilicus, which is now sensibly affected, and raised nearly to a level with the surrounding integuments. In the seventh month the fundus uteri may be felt half way between the umbilicus and the end of the sternum; and if an examination be made per vaginam, the finger readily detects the globular tumour of the uterus resting on the symphisis pubis, and within it the child's head; but the os uteri is now reached with greater difficulty, both because it is raised absolutely higher in the pelvis, and also because it is removed farther from the external parts by being projected more towards the promontory of the sacrum.

By the end of the eighth month the uterus has risen as high as the ensiform cartilage, and fills the whole abdomen, which is now very prominent and tense; and the umbilicus is in general not merely on a level with the integuments, but projects beyond them.

In the ninth month the uterus continues to enlarge, but the degree of its increase is not very observable by an increased elevation of its fundus, which, on the contrary, very generally falls lower towards the close of the month; so that sometimes for a week, or even two, before labour, the woman will appear and feel smaller than before. If at this period we examine internally, the os uteri will in most cases be touched with great difficulty from its situation towards the upper and back part of the pelvis; there are in general no remains of the cervix, and the margins of the os uteri are felt thin, soft, and so relaxed that the orifice would receive with perfect ease the end of one's thumb, and within its circle we may feel the membranes.

While the uterus remains within the cavity of the pelvis, if its fundus can be felt through the integuments, it is found lying behind the symphisis pubis, and occupying a central situation, but when the organ has left the pelvic cavity, either partially or completely, and an examination is made in the course of the fourth and fifth months, the uterine tumour occupies a lateral situation in the abdomen, and most frequently on the right side. This lateral inclination, especially when the female is lying supine, is the necessary consequence of the projection of the sacro-vertebral promontory, into the hollow at either side of which the organ is received, and its more frequent direction to the right side[1] rather than to the left, is ascribed to the latter situation affording less space, on account of the presence there of the sigmoid flexure of

[1] See Schmitt, critical Introduction, pp. 29, 40; Desormeaux, Dict. de Méd. tom. x. p. 378.

the colon and the rectum. As the organ grows larger it requires more space for its accommodation, and can no longer be lodged in the lateral hollow, so that as pregnancy advances, it necessarily assumes a position more and more central. The lateral situation of the uterine tumour in the middle period of pregnancy has sometimes given rise to the suspicion that it was the product of disease, as of the ovary, the centre of the supra-pubic region being found unoccupied, while the iliac was distended; a case in which this occurred has been already detailed.[1]

The uterus within the first four months has the feel of a soft though pretty firm fleshy tumour, not sensitive when pressed, of a uniform smooth surface, and of such a size as would be without difficulty grasped in the hollow of the hand; after this period, that is, from the fifth month, it loses somewhat of its firmness and distinct feel, owing to its greater expansion and the consequent lengthening out of its fibres, which continuing to increase as pregnancy advances towards its termination, the circumscribed outline of the organ becomes less and less distinguishable; though generally to be detected by making pressure with one hand while we examine with the other, in doing which we also ascertain some degree of obscure fluctuation; but in the same proportion as the parietes of the organ become indistinct, its solid contents are more easily felt, and even separate limbs may be recognised and traced: the firmness of the tumour, as well as the degree of fluctuation which it affords, will very much depend on the size it has acquired, or the natural firmness or suppleness of its structure, and on the quantity of liquor amnii. Owing to the variation in these causes a corresponding degree of difference will be recognised in its consistence in different instances, so that while in some persons it is so soft and yielding as hardly to be felt, in others it presents a degree of solidity amounting to absolute hardness,[2] though still healthy and retaining its round or oval form, and its uniform smooth surface.

When pregnancy happens to be complicated with something anomalous in the state of the uterine contents, independently of any morbid condition of the organ itself, it may present characters very different from those above described; as in the case of M. S. already related,[3] in which the uterus at the fifth month, was of scirrhous hardness, nodulated on its surface, and exquisitely painful; there were also profuse sanguineous discharges during the whole time of pregnancy, though, as the event proved, the organ was healthy, but contained matters not belonging to the then existing ovum. In another case, more recently under the writer's care, where the ovum had become converted into hydatids, with frequent bloody discharges, the uterine tumour was so hard that it had previously been considered as a scirrhous enlargement of the ovary,

[1] In chap. v. p. 53; see also Gooch, case iv. p. 221; and Schmitt's tenth case, second division.

[2] See Schmitt's ninth and eleventh cases, second division.

[3] Chap. iv. pp. 46, 47.

of which it had all the hardness and knotty feel, but it contained nothing except hydatids, around which were large flakes of coagulated blood and decidua, the uterus itself being unaffected with disease. Morgagni also has recorded a case in which the gravid uterus was irregular in form and painful when pressed on, with irregular discharges, and here also there was an anomalous substance in the uterus along with the ovum:[1] in the three cases the existence of pregnancy was almost to the last exceedingly doubtful, and in the three also the uterine contents were expelled in the fifth month. Whether these conditions of irregularity of form and painful sensibility, with profuse and repeated discharges, accompany gestation complicated with such anomalous additions to the uterine contents, with sufficient constancy to be received as diagnostic signs of the presence of such adventitious formations, is a question to which I am not prepared to give a decided answer, but it appears that Morgagni adopted the affirmative opinion; for, in the case examined by him, he said in consultation that he "feared lest there should be a false conception besides the fœtus."[2] All I will venture to affirm is, that the peculiar symptoms alluded to have been very frequently found where such anomalous or monstrous productions have existed in utero, but whether as cause or effect we must be, in most cases, without means of determining; in some a morbid condition of the uterus was fully ascertained, both by the writer and others.[3] In Mr. Fenner's case, "the mother was affected with an enlarged and diseased state of the posterior part of the fundus uteri, where the placenta of the monstrosity had been attached." Obviously nothing can be more consistent with the general laws of pathology and physiology than that the morbid condition of the uterus which would induce such symptoms as those enumerated should also alter the quality of the nutrition furnished to the new organisation, so as to induce malformation, or the production of some unnatural adventitious structure; while, on the other hand, it seems reasonable to believe that substances accidentally remaining in the uterus after abortion or delivery, and continuing there after a new conception, would, by their presence, alter the uniform shape of the organ, and produce considerable irritation, with sanguineous discharges. Schmitt says that molar pregnancy has peculiar signs by which it may be distinguished, if not with certainty, at least with probability, but he does not say what these signs are. I shall now proceed to describe the several modes of examination usually adopted, and the best method of conducting them; at the same time noticing the different degrees of distinctness with which the changes in the uterus may be recognised in different individuals, or in the same person at different times.

[1] Epist. xlviii. art. 9.

[2] Ibid.

[3] Case by Dr. Hodgkin, Guy's Hospital Reports, No. 2, p. 218; and another by Mr. Fenner, in same work, p. 220.

CHAPTER VIII.

ON THE DIFFERENT MODES OF EXAMINATION, AND THE METHOD OF CONDUCTING THEM—SUMMARY.

The modes of examination by which we seek to ascertain the sensible signs of pregnancy depend upon the exercise of the senses of touch, hearing, and sight. By the hand we institute the external examination through the abdominal parietes, the internal examination by the vagina or rectum, and perform the manœuvre of ballottement or repercussion. By the ear we recognise certain sounds resulting from the state of the circulation in the gravid uterus, and the action of the fœtal heart. By the eye we judge of the volume of the abdomen enlarged by the uterus, of the state of the breasts and the characters of the areola, both of which subjects have been already fully considered in their proper places; very recently another mode of judging from an object of sight has been proposed by Kluge and Jacquemin, which shall be noticed presently.

Whichever form of manual examination we adopt, it should be made, if possible, before the patient has risen from her bed in the morning and before breakfast, means having been previously adopted to have the bowels and bladder completely emptied,[1] as distension of the latter organ might entirely defeat the examination or impose on us.[2] If the patient has had the bowels distended with flatus, it should be, if possible, removed. When our object is to examine the uterus through the abdominal parietes, she should be placed lying on her back, with the head and shoulders moderately elevated, and the knees drawn up until the thighs are brought to nearly a right angle with the trunk, that the abdominal muscles may be completely relaxed. One hand or both should then be spread over the abdomen; in a case of early pregnancy, one hand will answer best, which should be laid across between the umbilicus and pubes, and allowed to remain quiet for a short time before we begin to make pressure, while at the same time we engage the patient in conversation, and gradually press the integuments inwards and downwards towards the cavity of the pelvis, which will be most effectually done during a complete expiration. At more advanced periods of gestation we must use both hands, placing them along the sides of, or across the abdomen, and pressing from the one towards the other, either simultaneously or alternately.

[1] Dr. Blundell recommends as a mode of ensuring greater accuracy, when about to examine for the purpose of ascertaining the size of the uterus in the earlier months, to direct the patient to drink copiously of water a few hours before, so as to enlarge the bladder, which should then be completely emptied by the catheter or the natural efforts, so as to relax thoroughly the abdominal coverings in the region of the pubes. "Principles of Obstetricy," p. 170. I have no experience of such a mode of proceeding, and can hardly believe that much advantage, if any, would be derived from its adoption."

[2] As happened in the case of Joanna Southcott, see p. 64.

In some women there is a natural stiffness and tension of the muscles of the abdomen, which is a great obstacle to an examination; and this they can produce or increase at pleasure, if they wish to baffle us in our investigation. In this, however, we may defeat them, by engaging them at the instant in conversation on some subject connected with their case, which will be likely to set them talking. In other cases a similar difficulty will arise from inflation of the intestines, or their distension by an accumulation of fæces; sometimes the abdominal tenderness already noticed,[1] is so considerable as to prevent any sufficient examination without causing great uneasiness and pain; under such circumstances we must postpone the trial, and adopt measures to diminish the untoward sensibility of the abdomen: a still more insuperable bar may be found in a general condition of *embonpoint*, when the omentum and abdominal integuments may be so loaded and thickened with fat, that we can no more feel any thing through them, than if we had a folded blanket between our hand and the patient's abdomen. This is so remarkable in some fat women, that I have found it impossible immediately after delivery to ascertain by external examination the degree of uterine contraction, although there were other satisfactory proofs of its perfection. We should not forget that this is a state of the abdomen very apt to occur at the turn of life, when, from the cessation of the catamenia, women very often fancy or affect to think themselves with child. On the other hand, the examination will be most satisfactory in women of a spare habit, and who have the abdominal parieties relaxed.

When we are to examine internally, the same precautions ought to be observed as in the other case, but the position of the female is different. She may be examined either standing upright, which is in general a very objectionable mode of proceeding, or lying on the side with the knees drawn up as already described, and the limbs kept slightly apart by a pillow; the index finger is then to be introduced, having been previously immersed in oil or covered with any simple unirritating unctuous substance, such as lard or spermaceti ointment, a bit of which may be with advantage carried into the vagina before the point of the finger, which is then to be slowly advanced up to the os uteri, and our attention directed to the examination of those changes already described; with a woman who has borne children, this proceeding, gently managed, is in general one of much facility and unaccompanied with pain, but with women pregnant for the first time, it may be a source of uneasiness, and requires a proportional degree of caution and gentleness; under such circumstances the orifice of the vagina is sometimes found so contracted, or so painfully sensitive, as to embarrass us extremely, or even altogether prevent the possibility of making a satisfactory examination, however desirable. I am in

[1] Chap. vi. p. 92. See also Schmitt's twenty-fifth and thirty-second cases, first division.

the habit of attending a lady who miscarried once in the third month, a second time at the end of the fifth, and subsequently gave birth to a child at the full time, but has, notwithstanding, such extreme irritability of the sphincter of the vagina, that even when in labour the ordinary examination with one finger was a source of great pain to her, and under other circumstances caused her absolute torture.

Where the case happens to be such as renders an examination indispensably necessary, this irritable state of the part may be abated by appropriate measures, such as leeching, aperients, and the application of sedative fomentations; but I would here wish to caution against using applications of belladonna for such a purpose, because its introduction into the vagina even in small quantities has been soon followed by the symptoms of poisoning by that drug. It is sometimes very difficult to reach the os uteri from the external parts, owing either to its being really situated very high in the pelvis, or to the bulk of the nates and labia in a fat woman preventing the close access of the hand; under such circumstances it may be advantageous to examine the patient in the standing posture, or by conjoining the middle finger with the index we shall be enabled to reach nearly an inch further,[1] if the state of the vagina will permit of our doing so without giving too much pain.

The examination per anum is a mode of determining the state of the uterus, which, although very useful in the investigation of certain of its diseases, is seldom required where pregnancy only is in question, and as it is submitted to with great reluctance it should never be resorted to except as a matter of unavoidable necessity, when we cannot by other means obtain the information requisite for the benefit of the patient. It may thus become necessary, 1stly, when for any particular reason it is thought desirable to ascertain whether the uterus is enlarged within the first two months of supposed pregnancy; 2dly, when tumours attached to, or pressing on, the uterus, or malposition of the organ itself, render the ordinary examination unsatisfactory; 3dly, when there exists morbid sensibility of the vagina, or that passage happens to be excessively contracted, or perhaps closed, either by accidental adhesions or by an unbroken hymen; 4thly, when there exists a suspicion of disease or of malformation. In making this examination we should use the hand of the same side as that on which the patient is lying, by which the pulp of the finger is most readily brought into contact with the back of the uterus, more of which can be thus felt than by any other means; but it should be recollected than when the uterus is thus examined by a person not accustomed to it, the organ appears much larger than it really is.

It has been already stated that during the first three months we

[1] Lisfranc, in his recently published work on the Diseases of the Uterus, p. 40, recommends another mode of accomplishing the same object, to which it would be very difficult to induce females in the country to submit.

may find it very difficult to judge accurately of the altered size of the uterus, and that the changes effected in its neck and orifice may remain obscure for nearly the same length of time; for these reasons it will generally be better not to propose, but rather to decline and abstain from making a vaginal examination at this period, because it is commonly much disliked, and perhaps only submitted to from an idea that it will enable us to pronounce with absolute certainty on the state of the case; and if we are not able to do so, the patient is disappointed, and we suffer in her estimation: but in the course of the fourth month these changes have become distinct, and may be ascertained both externally and also per vaginam; and it may be here added that in a case of doubt we may make these two modes of examination naturally confirmative of each other, by applying the finger of one hand to the os or cervix uteri, and pushing that part upwards, and then with the other hand gently pressing down the tumour felt in the abdomen. If we thus feel its descent upon the finger in the vagina, it affords almost certain proof that the tumour is the uterus in a state of enlargement. But we must again recollect that even a certainty of this will not be sufficient to assure us of the existence of pregnancy; because the enlargement may arise from other causes than the presence of a fœtus, such as hydatids, polypus, dropsy, accumulated menses within the uterus, or scirrhous thickening of its substance. In the case of polypus or scirrhus, the great solidity of the organ would at once undeceive us; but in other circumstances we might only succeed in ascertaining that the cavity of the organ was increased in capacity without being able to determine the exact cause of its enlargement. At the same time the presence of several of the symptoms of pregnancy might afford a very strong moral conviction of the existence of that condition; while, on the other hand, we may discover such a want of correspondence between the state of the uterus and the other symptoms apparently indicating a certain period of pregnancy, as would be sufficient to decide our opinion on the negative side of the question.

I have already spoken of the mode of examining externally to discover the presence of a fœtus in utero, and alluded to another form of examination to which we ought to resort for this purpose, usually known by its French designation of ballottement, for which, however, the English term repercussion may be conveniently substituted.

Ballottement or repercussion may be performed in three different ways. First, with the patient lying supine or on her side, by placing one hand open on the side of the abdomen, and making pressure towards the opposite, while at the same time we impress the uterus in the contrary direction with the ends of the fingers of the other hand, by which means the fœtus may be either thrown into contact with the hand which is kept spread on the abdomen, or if the examination be made with the patient lying on her side, the fœtus may be felt to drop on the points of the fingers, which

should in this case be kept in close contact with the integuments after the jerking motion has been made with them. Sometimes the voluntary or active motions of the child are thus excited and recognised. This mode has the great advantage of not requiring any vaginal examination, and will also occasionally enable us to succeed in our object when we could not do so by the internal method, owing to the difficulties which will be specified presently, but it is liable to the objection of not being applicable at so early a period of pregnancy as the latter. A second external method, for the suggestion of which I believe we are indebted to Dr. Heming, of London, appears entitled to the same commendation, and liable to the same objection as the first: it consists in placing the woman, either on the side with the hips raised, or, as I have myself tried it, on her knees, and with the shoulders depressed, so that the fœtus may be caused to gravitate towards the fundus uteri, which is also brought into more complete contact with the abdominal parietes; the jerking pressure of the fingers is then to be made above the pubes, and the same result sought for as in the other methods. Dr. H. has suggested for this the name of *hypogastric repercussion:* my trials of it have not been attended with much success.

The third or internal method is thus to be instituted. The patient may be examined in the upright position, or placed lying with the shoulders much raised: the latter position is generally to be preferred as being more convenient, and infinitely less revolting to the feelings of the patient; besides which it allows us to examine at the same time the supra-pubic region with the other hand, which cannot be satisfactorily done when the woman is standing upright; whichever position is adopted one or two fingers are to be introduced into the vagina, and carried upwards until their points are applied to the anterior portion of the cervix uteri, as high up on that part as they can be conveniently made to reach without using force, and they must be carefully kept in constant contact with the spot to which they have been applied. The other hand of the examiner is to be placed on the abdomen over the uterine tumour, which should be pressed downwards towards the cavity of the pelvis; instantly on our doing this, the fingers which have been kept applied to the cervix should be impressed against it with a quick and slightly jerking motion upwards, when something will be felt to have bounded away from the fingers, upon which it will, in the course of three or four seconds, be felt to drop again with a gentle pat, and this proceeding may sometimes be repeated as often as we please.

Should this be distinctly felt, it is proof positive of a fœtus in utero, there being no other condition or disease of the organ in which a solid body can be felt in this way floating in its cavity; the fœtus being under the existing circumstances in a condition not unlike that of the figures which we see in bottles at the opticians' shops, which can be made to dance up and down, by striking

the side of the bottle or making pressure on its cover;[1] and it possesses this great advantage over many other modes of investigation, that it is equally applicable to the dead as to the living fœtus. But we must be prepared for occasional disappointment in this test as in others, inasmuch as the most carefully conducted examinations of this kind have failed of success, when there was really a fœtus in the womb of sufficient bulk to be thus felt, as I have myself experienced. This difficulty may arise in some cases from the fœtus being unusually small, or from the cervix being unusually long; and in some instances I have been satisfied it arose from the uterus lying too much beyond the reach of the finger at the time of the examination, the success of which may also be defeated by the presence of the placenta low in the cervix or over the os uteri, and of course interposed between the finger and the child, which we are thus prevented from feeling;[2] in such a case the external modes might be successful.

The time at which we may resort to this examination with the best prospect of success is generally said to be from the fourth to the sixth month. My experience leads me to say that although we may occasionally succeed in performing repercussion during the fourth month, it is not in general likely to be decidedly satisfactory until that month is completed, but from that till the end of the sixth it will be found most available, and often completely decisive.[3] In the earlier periods of pregnancy the fœtus is too light to be felt, and in the more advanced its presence is ascertainable by other means, and besides it is then too large and too much confined to be made to float or move about thus freely.

It is desirable that the bladder and rectum should be quite empty when we make this examination, that the uterus may have as much space as possible for its descent in the pelvis, and so be brought more within reach of the examiner's finger. We must be careful not to mistake the movement of the uterus for that of the fœtus, an error into which we shall be particularly liable to fall if we remove the fingers from their contact with the cervix while making the examination. In one instance of enlarged uterus, I knew the pulsation of one of the arteries to be mistaken for the drop of the fœtus on the finger.[4]

Schmitt's objections to this mode of examination as being "super-

[1] Rœderer says, "Quas quidem ascensus, descensusque vicissitudines repetere exploratori licet, *simili propemodum saltatu quo homuncione cartesiano ludimus.*" Elem. Art. Obstet. p. 27, § 89.

[2] As in one of Dr. Gooch's cases; see Account of Diseases of Females, pp. 223, 224.

[3] Gardien specifies four months and a half; Gooch from the fifth to the seventh, Op. jam. cit. p. 216.

[4] On this subject see Baudelocque, tom. i. p. 206.—Desormeaux, Dict. de Méd. tom. x. p. 400.—Velpeau, Traité des Accouchemens, tom. i. p. 194.—Gooch, on Female Diseases, &c. p. 215.—Gardien, Traité Complet, &c. tom. i. p. 507-10.—Mahon, Méd. Lég. tom. i. p. 160, note by Fautrel.

fluous and hazadous" would surprise, and might influence us, were it not that he acknowledges he never tried it.

Application of auscultation.—Since the appearance of the memoir of Dr. Mayor[1] of Geneva, in 1818, and the subsequent observations of Kergaradec and Laennec, the application of auscultation as a means of detecting pregnancy has been much cultivated, and with results highly beneficial to the interests of science and our powers of making a correct diagnosis.

The phenomena thus ascertainable are, the pulsations of the fœtal heart, and a peculiar sound audible in, and supposed to be confined to that part of the uterus to which the placenta is attached, and hence called the placental sound or murmur (*bruit placentaire*), though there is great reason to doubt the invariable connection between this sound and the situation of the placenta. I shall first consider the modes of investigating these phenomena, and then state the advantages which this mode of examination enjoys above others, and the defects under which it labours as a general means of diagnosis.

The placentary sound is the one first capable of being examined, and may be heard as soon as the uterus has become sufficiently developed for its fundus to arise above the anterior wall of the pelvis: this happens in the fourth month of gestation, before which period I do not believe the placental sound can be ascertained. I am aware that cases are recorded in which it was supposed to have been heard so early as the tenth week. If so, I have not been so fortunate as others, although I have very many times indeed carefully repeated my examinations, but never succeeded until four months of pregnancy had been completed. Velpeau[2] could not hear it till after four months and a half, and Hohl not till the fourth month.

The characters of this phenomenon are, a low murmuring or somewhat cooing sound, resembling that made by blowing gently over the lip of a wide-mouthed phial, and accompanied by a slight rushing noise,[3] but without any sensation of impulse. This sound is, in its returns, exactly synchronous with the pulse of the mother at the time of examination, and varies in the frequency of its repetitions with any accidental variation which may occur in the maternal circulation. Its situation does not vary during the course of the same pregnancy; but in whatever region of the uterus it is first heard, it will in future be found, if recognised at all, for it is liable to intermissions, at least we shall occasionally be unable to

[1] Bibliothèque Universelle, Nov. 1818.

[2] "Je ne l'ai rencontré que dans la seconde moitié de la grossesse. Si Laennec et M. de Leus, qui disent l'avoir reconnu avant la fin du troisième mois, si M. Kennedy, qui pretend l'avoir souvent apprecié dès la dixième, la onzième, ou la douzième semaine, ne se sont pas mepris, il me parait par cela seul impossible de l'attribuer à la circulation utero-placentaire." Velpeau, Traité des Accouchemens, vol. i. p. 199.

[3] "Battement simple avec souffle." Kergaradec.

hear it where we have already heard it a short time before, and where we shall shortly again recognise it. In relation to the regions of the abdomen, its seat will of course vary in proportion to the progressive advance of the pregnancy. According to my experience it will be most frequently heard about the situation of the Fallopian tube of the right side, but it may be detected in any of the lateral or anterior parts of the uterus.

The other phenomenon differs in every one of its circumstances from the (so called) placentary murmur. It results from the contractions of the fœtal heart, which, when conveyed to the ear, are heard as rapid pulsations without any of the murmuring sound of the *bruit placentaire*. These pulsations vary in number from 120 to 160 in the minute, while the mother's pulse at the same time may not exceed the usual standard: and should it happen to do so, the pulsations of the fœtal heart will not be found similarly affected. By this want of correspondence and permanently greater rapidity, they are distinguished from the pulses of the mother. The impulses of sound communicated to the ear are in general very delicate and feeble, resembling much the ticking of a watch heard through one's pillow at night.[1] This phenomenon is not ascertainable, according to the writer's experience, until five months of pregnancy have been accomplished,[2] and then requires for its recognition very great attention on the part of the examiner, and a practised ear. As pregnancy advances, the sound becomes more distinct. Its seat or source being the heart of the fœtus, and the fœtus having, in most women, a great disposition to change its posture, the situation of the sound will consequently be different at different times, especially from the sixth to the eight month. It is, however, most frequently and most readily heard on one or the other side, and at about the middle of a line drawn from the umbilicus to the anterior and superior spinous process of the ileum, and more frequently on the left side than on the right.

This mode of ascertaining the existence of pregnancy has this great advantage over almost every other, that it detects not only the presence of a fœtus, but proves its life also. On the other hand, however, should life be extinct, auscultation cannot possibly afford us any information; and here lies the great defect under which its application labours when compared with other modes of examination, to which also it is inferior in not being available during that period of pregnancy which is most obscured by doubt. Again, from the fact that both phenomena are occasionally inaudible[3] even in the case of a living and healthy fœtus, it will not justify us in giving a negative opinion. The bruit de cœur once heard is of course decisive, because there is no other sound which can be mistaken for it; but not so with the placental murmur, which may

[1] "—semblable à celui que font entendre les battemens d'une montre enveloppée de beaucoup de linges." Velpeau.

[2] "Ces pulsations s'entendent distinctement dès le sixième mois, et quelquefois même un peu plus tot." Laennec, tom. ii. p. 457.

[3] See case related, p. 60.

be so imitated, either artificially, as by pressure, or by disease, that the nicest and most practised ear cannot detect any difference. A case strikingly illustrative of this statement was formerly under the writer's care, in which enormous enlargement of the uterus, of that kind which has been called vascular sarcoma, was accompanied by this phenomenon in its most perfect condition; and in another case of abdominal tumour (supposed to be of the spleen) pressing on the aorta, this sound was equally distinct: moreover, it may at any time be imitated by pressing the end of the stethoscope over the region of the iliac vessels.

In a case lately seen by the writer in consultation with Dr. Churchill, a large abdominal tumour gave rise to the suspicion of pregnancy, of which several of the symptoms existed, especially a very distinct placentary murmur. On careful examination no doubt remained as to the morbid character of the tumour, in the right side of which an artery of considerable size could be felt pulsating, and at the opposite side a much smaller one was distinctly recognised: we found that when the stethoscope was applied over the course of the larger vessel, without any pressure from the end of the tube, a sound perfectly resembling the placental murmur was constantly heard, but not when the instrument was applied over the smaller artery.

At all times this kind of examination requires great care and nicety on the part of the examiner, and complete silence around him, for the sounds are very often almost imperceptible. We have the very highest authority for believing that the formation of a correct judgment by their means requires more care, and is beset with greater difficulties than are found in investigating all the diseases of the chest.[1] We must also recollect that, from their occasional intermission, it may happen that we shall not be able to give a satisfactory opinion until we have several times repeated our examination. To make this examination, it is by no means necessary that we should be practised stethoscopists, or even use the stethoscope at all, since the naked ear will detect the sounds sought for with perfect accuracy; but the use of the tube is, for many reasons, preferable.

It appears not unimportant to mention here, that our success will sometimes depend on our making a proper degree of pressure with the end of the instrument, since the seat of the sound which we seek to discover may not be, and very often is not in contact with the surface on which we apply our ear or our stethoscope; and under such circumstances the intervention of a fluid, such as the liquor amnii, may effectually prevent the transmission of the sound, until, by gently increasing the pressure on the integuments, we carry them inwards, and by displacing the intermediate fluid,

[1] "L'étude des phenomènes dont nous venons de parler dans cet article demande incomparablement plus d'attention que celle de tous ceux que presentent les maladies de la poitrine." Laennec, tom. ii. p. 466.

whether air[1] or water, we bring them into more immediate contact with the source of the sound, and obtain a solid medium for its transmission. For the same reason also we may occasionally find it necessary, when the abdomen is much distended, especially in cases of an excessive quantity of liquor amnii, to examine the patient standing upright instead of in the recumbent or supine position, because by doing so the child is made to press more firmly against the anterior parietes of the abdomen, and is consequently brought more closely in apposition with the end of the instrument.

Another mode of applying auscultation has been proposed by Nauche, by means of an instrument which he calls a metroscope,[1] consisting of a tube of wood curved at nearly a right angle, one end of which is to be introduced per vaginam and applied to the cervix uteri: by such means he asserts that the presence of the placenta in the latter unfavourable situation may be detected and the fœtal movements recognised as early as the third month and before the mother is conscious of them herself. He adds that both he and M. Pichon thus discovered the existence of pregnancy, in several cases under treatment as diseases of the uterus. The writer very readily acknowledges his total want of experience in the use of the metroscope, but cannot avoid expressing his entire disbelief in its asserted advantages; and even if these were confirmed, few cases are likely to occur of such extreme urgency, as to induce us to overcome our reluctance to adopt or propose such a mode of examination, which very few indeed would be found to permit.

Without meaning to depreciate the acknowledged value of auscultation as an *occasional* means of ascertaining the existence of pregnancy, I feel bound to state my opinion, that it will seldom be found necessary if the other more ordinary modes have been adopted with sufficient care; if we know how to make good use of our hands and eyes, we will not often require the assistance of our ears. There are, however, several other occasions in practice in which auscultation may be applied with a different object; as when in protracted labour it becomes desirable to ascertain whether the child still lives, or under circumstances such as those of the cases already related, p. 59, 60: the existence of twins also may be thus discovered; but into the details of these and other applications of this means I cannot at present enter, as they would be foreign to our present investigation; very full information on these subjects will be found in the writings of Kilian,[3] Hohl,[4] Dubois,[5] Kennedy,[6] Adams,[7] and Nagle.[8]

[1] Whether in the intestines, the cavity of the peritoneum, or in the uterus itself, where it sometimes collects in considerable quantities during gestation.
[2] Maladies propres aux Femmes, p. 752.
[3] Operations-lehre für Geburtshelfer, in zwei Theilen. Bonn.
[4] Die geburtshülfliche Exploration. Halle, 1833.
[5] Rapport à l'Academie sur un Mémoire de M. Budson.
[6] Observations on Obstetric Auscultation, &c. p. 58.
[7] Dublin Medical Journal, vol. iii. p. 65.
[8] Lancet, 1830-1, pp. 232, 395, 435, &c.

Lastly, it remains to notice an evidence of pregnancy lately proposed by Dr. Kluge, professor of midwifery at Berlin, and by M. Jacquemin at Paris, which they declare to be *a sure test* of that condition: this is a bluish tint of the vagina extending from the os externum to the os uteri. According to Dr. K. this discoloration commences in the fourth week of pregnancy, continues to increase till the time of delivery, and ceases with the lochia. The only condition, he says, likely to vitiate this test, is the existence of hemorrhoids in a very marked degree. Dr. Sommer, who reports this discovery, convinced himself of the presence of this colour in pregnant women, under the direction of Professor Kluge. M. Jacquemin, in conducting the examination of the genital in prostitutes, in compliance with the police regulations at Paris, observed the same peculiarity of colour in the same situation in those who were pregnant: he describes it as a violet colour, or like lees of wine, and so distinct as never to deceive him, being sufficient of itself, and independently of the other signs of pregnancy, to determine the existence of that state. Duchatelet mentions[1] that he was present when M. Jacquemin's accuracy in this matter was put to the test successfully: in the investigation he examined no less than 4500 prostitutes.

The writer's present experience does not enable him to speak decidedly on this point, because the opportunities afforded for ocular examination of the vagina in pregnant women are comparatively rare, and when they do occur it is almost always on account of some disease of the parts which changes their natural appearance; but I feel bound to state that nothing within my observation contradicts the accuracy of the sign under consideration; on the contrary I found it present, in a greater or less degree, in a few cases which I recently examined expressly for the purpose, where pregnancy undoubtedly existed.

But supposing it a constant accompaniment of gestation, as asserted, it is obviously produced by the increased vascular determination or congestion existing at that time in the genital system, and hence we must anticipate the great probability that other forms of vascular congestion independent of pregnancy would cause the part to assume a similar appearance; an expectation which appears to be justified by facts. In a case lately seen by the writer, it became necessary to examine the vagina at the time of menstruation, and this purple hue of the mucous membrane was distinctly perceived. It is, also, well known that a common mode, long in use, of ascertaining whether certain of the lower animals are in a state fit for intercourse with the male, or in heat as it is called, is to examine the orifice and internal surface of the vagina, which, under such circumstances, is found almost inky dark; as we find noticed by Mr. Cruikshank in the following passage of his paper.[2]

[1] De la Prostitution dans la ville de Paris, tom. i. p. 217, 218.

[2] Experiments to discover the Ova of Rabbits, &c. Philos. Trans. for 1797, p. 199.

"May 30, 1778, I took a female rabbit, hot, (as the feeders term it,) that is, ready to be impregnated, and disposed to receive the male. This they find out, not by exposing her to the male, but by turning up the tail and inverting part of the vagina: *its orifice and internal surface are then as black as ink, from the great derivation of blood to these parts.*" While, on the other hand, should the ovum be blighted, and the increased activity of the uterine circulation consequently cease, this colour of the vagina would most probably disappear altogether, or become very imperfect. It is moreover a mode of judging, which, even if proved to be infallible, would be totally inadmissible as a general means in practice. Such considerations must of course considerably modify the value of this test; but, nevertheless, should subsequent observations prove that healthy pregnancy is invariably accompanied by such an appearance, becoming visible within the first or second month, the fact would certainly be one of the most important additions ever made to our means of making a correct diagnosis in cases of early pregnancy, and the more especially as it would be applicable to a period, at which we have no other satisfactory means of discovering the existence of that condition; and might occasionally, under peculiar circumstances, be resorted to with propriety and advantage.

Before leaving this part of our subject, and proceeding to consider other less usual sources of information, a brief summary of the evidence to which we may refer at different periods of pregnancy appears desirable.

1st. Should the examination be required before the end of the third month, we have in general no sign or symptom on which we can place perfect reliance; but our opinion must be formed from the suppression or continuance of menstruation, the state of the breasts and areola, sickness of stomach, state of the os uteri. In a rare instance quickening may have taken place, or we may be assisted by the detection of some idiosyncrasies of the individual, or by her being conscious of exactly the same sensations as those which had been experienced at a similar period in her former pregnancies.[1]

[1] See instances already noticed, pp. 28 and 34.—September 14th: a lady pregnant for the third time, whose account of her symptoms is so unusually clear and circumstantial that I would place the utmost reliance on any statement made by her, assured me that she has always been aware of her condition within a very few days after conception, from experiencing a peculiar and rather unpleasant sensation of thrilling or fluttering in the iliac region, very much resembling what she afterwards felt when quickening; soon after experiencing this sensation she has always begun to suffer her usual symptoms of pregnancy, and in about eighteen weeks afterwards quickening took place: reckoning from the day of that occurrence her labour always came on *precisely at the end of twenty weeks*, so that, when I first saw her on the day above mentioned, she told me she had quickened on Friday the 27th of May, and consequently expected to require my attendance on Friday, the 14th of October, in the evening of which day she sent for me, when I

2dly. In the fourth or fifth month, in addition to the above points of reference, we seek to detect the increased size of the abdomen and the uterine tumour, which is generally at this period well defined, and may be felt overtopping the anterior wall of the pelvis; the umbilical depression is beginning to diminish, and the fœtal movements have been most probably felt by the mother, or may be recognised by the hand externally applied, or by repercussion per vaginam, and the placental murmur may be heard. The os uteri is now much changed, as are also the breasts, on which we may expect to find the areola fully formed and in some instances the peculiar mottled appearance already described; not unfrequently a lymphy or sero-lactescent fluid is found exuding from the nipple, or the extremity of this part is covered with little bran-like scales.

3dly. In the sixth and subsequent months, the development of the abdomen, and the size of the uterine tumour, within which we may be able to distinguish different parts of the child's body; the umbilicus raised to the level of the surrounding surface, or projecting above it, the patulous and otherwise greatly altered state of the os uteri, and shortened cervix, above which we feel the bulging body of the uterus, and the head of the child lying against its anterior wall, if distinctly recognised, afford proofs which leave no room for doubt, which would, of course, be equally removed if we detected the phenomena derivable from auscultation.

In investigations of this kind an invariable rule should be, to collect every possible proof before we venture to pronounce an opinion; not trusting to the evidence of any particular sign or sympathy, however distinct, or whatever may be our faith in its value; but taking all the evidence together, and judging of it collectively and comparatively, except we have *distinctly and unequivocally heard the pulsations of the fœtal heart, or felt the child in utero*, which ought, of course, to be decisive of the question.

Should the case be one into which legal considerations enter, whether of a civil or criminal character, and involving property, reputation, or life, *our decision ought to rest on no evidence that admits of doubt*, and if we cannot have such proofs as will rigidly satisfy our judgment, and enable us to decide without hesitation, our uncertainty must be strongly and fearlessly expressed, and our decision postponed until a further lapse of time shall remove the obscurity of the case.

found her labour commencing; it went on slowly through the night, and next day she gave birth to a healthy girl. See another similar instance already noticed, p. 57.

CHAPTER IX.

EXAMINATION OF SUBSTANCES EXPELLED FROM THE UTERUS — AN EARLY OVUM — MOLES — HYDATIDS — THE MEMBRANE FORMED IN DYSMENORRHŒA AND IN OTHER CONDITIONS OF UTERINE DERANGEMENT.

The expulsion from the uterus of solid or organised substances, presenting occasionally very unusual or anomalous characters, excites not unfrequently suspicions of the existence of pregnancy in the unmarried, or perhaps the perfectly chaste. Under such circumstances we may be applied to for an opinion as to the nature of the substance expelled, and are expected to declare whether it is or is not the product of conception; and, inasmuch as the character and fair fame of the individual depend on our answer, the greatest care will be required in making such an examination, and the utmost caution in forming or pronouncing an opinion. To this duty no person can possibly be competent if he have not previously made himself intimately familiar with the appearance and structure of the ovum, particularly in the earlier periods of its growth; and this knowledge, he may take it for granted, he never will attain to by descriptions in books or plates, nor by any means except repeated examinations of the structure itself, under every circumstance and condition in which it may be found; more especially when it is altered in its characters, as it usually is, by abortion.

The subtances thus expelled may be, 1. an early ovum; 2. a mole; 3. uterine hydatids; 4. the membrane produced in dysmenorrhœa, or other conditions of uterine derangement; to each of which we shall now turn our attention.

1. *An early ovum.*—When the product of conception is expelled within the first month, the most careful and skilful examination may fail in detecting its true character. After this period its structure is sufficiently distinct to be recognised by any one well acquainted with it, and who will take *sufficient time* to examine it; for this also is absolutely essential to the formation of a correct opinion. The ovum, when thus expelled, is generally infiltrated with firmly coagulated blood, and the pressure which it sustains while it is forcing its way through the contracted and rigid cervix of the uterus, so condenses its texture, as to reduce it apparently to the condition of a solid homogeneous mass.

The real structure of the body cannot be ascertained by any examination instituted at the moment, but must be gradually made out, by first immersing the substance in water for a day or so, and then, by agitation and washing the coagulated blood must be removed, while with delicate blunt instruments we gently separate the component parts of the mass *under water*, until at length we ascertain its real character. This process may occupy us for a time varying from three or four days to a week, before we are able

to satisfy ourselves perfectly. Haste may completely defeat the object of the examination, or, still worse, it may betray us into giving an erroneous opinion.

If in the progress of such an investigation we discover a fœtus, or even a part of one, it would of course be decisive; but this may not be the case, and yet we may recognise all the other component parts of the ovum presenting several structures which are never produced by disease.[1] If the ovum is expelled entire, we have the uterine decidua covering the substance under examination, and distinguished by its soft, rich, pulpy appearance, and strong red colour; its external or uterine surface being rough and unequal, and, when well freed from the coagulated blood and immersed in water, exhibiting numerous small round foramina capable of admitting the head of a pin;[2] while its internal surface is smooth, generally thrown into slight, soft folds, and exhibits little or no appearance of foramina, any that may be perceptible being of very minute size. These characters, which are almost always to be recognised without difficulty, are sufficiently distinctive of the structure under consideration; but there is another, not hitherto noticed by any one as far as I am aware, although it is probably one of the most remarkable features in the organisation of this peculiar product. Repeated examinations have shown me that there are, on the external surface of the decidua vera, a great number of small cup-like elevations, having the appearance of little bags, the bottoms of which are attached to or imbedded in its substance; they then expand or belly out a little, and again grow smaller towards their outer or uterine end, which, in by far the greater number of them, is an open mouth when separated from the uterus; how it may be while they are adherent I cannot at present say. Some of them which I have found more deeply embedded in the decidua were completely closed sacs. Their form is circular, or very nearly so; they vary in diameter from a twelfth to a sixth of an inch, and project about the twelfth of an inch from the surface of the decidua. Altogether they give one the idea of miniature representations of the suckers of the cuttle-fish. They are not confined to any one part of the surface of the decidua, but I think I have generally found them most numerous and distinct, on those parts of it which were not connected with the capillary rudiments of the placenta, and at the period of gestation which precedes the formation of the latter as a distinct organ:[3] they are best seen about the second or third

[1] See a case related by Mr. Lemon in the Edinburgh Medical and Surgical Journal, vol. xi. p. 96. The writer has in his museum several specimens illustrative of this absence of the fœtus, where the other parts of the ovum exist.

[2] See Hunter's plates of the gravid uterus, xxix. fig. 11, and also plates xxviii. xxx. xxxiii. xxxiv.

[3] I confess I am not prepared (nor indeed is this the place) to offer any very decided opinion as to the precise nature or use of these decidual cotyledons, for to that name their form, as well as their situation, appears strictly

month, and are not to be found at the advanced periods of gestation. This outer coat may be found only partially adhering to the ovum, or entirely torn away and separated from it during its expulsion; but in either case these characters mark the true uterine decidua, and are not found in the products of disease.

Internal to this layer, and immediately investing the transparent membranes of the ovum, is found another, the decidua reflexa, the outer surface of which is smooth, and its inner completely filamentous, receiving the beautiful arborescent villi which cover and shoot from the surface of the chorion, forming the bond of union between it and this inner decidua. The discovery of these arborescent villi is proof positive of the nature of the product, as they are never found presenting like characters, except upon the chorion or uterine surface of the placenta.

2. *Moles.*— With regard to those solid fleshy masses called moles, which are occasionally expelled from the uterus, there is a great discrepancy in the opinions of writers of authority, some of whom maintain, with Mauriceau,[1] that they are the result of conception alone, and of course unequivocal proofs of pregnancy; while others either think this very doubtful, or deny it altogether, and suppose that they are merely accidental formations of a morbid character. "By the term mole," says Denman,[2] "authors have intended to describe very different productions of, or excretions from, the uterus. By some this has been used to signify every kind of fleshy substance, particularly those which are called *polypi;* by others, those only which are the consequence of imperfect conception when the ovum is in a morbid or decayed state; and by many, which is the most popular opinion, every coagulum of blood which continues long enough in the uterus to assume its form, and to retain only the fibrous part, as it is properly called, is denominated a mole." "True moles," says Voigtel,[3] "are distinguished from the false and other growths of the uterus by their not deriving their origin from the substance of the womb or its membrane; but by their being always the consequence of conception." This is at once assuming that conception is the sinè-quâ-non without which a mole cannot exist, an opinion which is supported to a certain extent at least, by the experience of Mr. Burns, who says, "It is the opinion of many that

to entitle them: but from having on more than one occasion observed within their cavity a milky or chylous fluid, I am disposed to consider them reservoirs for nutrient fluids separated from the maternal blood, to be thence absorbed for the support and development of the ovum. This view seems strengthened when we consider that at the early periods of gestation the ovum derives all its support by imbibition, through the connection existing between the decidua and the villous processes covering the outer surface of the chorion.

[1] "Il est très certain que les femmes n'engendrent pas de moles ni de faux germes, si elles n'ont usé du coit." Maladies des femmes, tom. i. p. 109. "Massa carnea, vasculosa, ex utero excreta. Ovum deforme." Vogel.

[2] Introduction to Midwifery, p. 124.

[3] Handbuch der pathologischen Anatomie, vol. iii. p. 501.

these substances are never formed in the virgin state. and no case that I have yet met with contradicts the supposition."[1] Foderé[2] thinks that the true mole is always the result of intercourse between the sexes, and that those substances which are discharged from the virgin uterus are merely condensed coagula of blood, which of course may form in the chaste as well as others. Baudelocque[3] considers the mole and the false conception as one and the same, which is also the opinion of Schmitt[4] and Dr. Alexander Hamilton.[5]

On the other hand, we find the matter thus stated by Dr. Smith: "Moles are disorganised masses that form in the uterus: and continuing for some time to increase, cause some of the symptoms of pregnancy. They have been found in females who never had any intercourse with the other sex.[6]" Ruysch makes a similar assertion, and adds that he has seen them in women so advanced in years as to be beyond the reach of suspicion. A case came before the parliament of Paris in 1781, in which the female sued for damages for seduction. Twenty months after this was alleged to have been committed she brought forth a mole. The parliament decided against her on the score of character, adding that "the causes of moles were as uncertain as the time of their gestation, *and that there were instances of girls, and even of nuns, who had produced moles without any previous criminal connection.*" Foderé, who quotes this case, disapproves altogether of the view taken by the court,[7] which is also contrary to the writer's experience, which has led him to the conclusion that the true fleshy mole is never found except in those who have previously indulged in sexual intercourse. Nusquam visa est mulier molam sine mare concepisse.[8]

It is to be observed here that this is a mere question of fact, of which different views have been taken, and opinions formed by authors or practitioners according to the opportunities afforded them of judging. The writer does not feel prepared to undertake to reconcile these conflicting opinions, but it appears to him almost certain that much of the discordance has arisen from substances of very different characters having been indiscriminately classed under the general term of moles, some of which were undoubtedly neither more nor less than diseased ova or remnants of such, while others were as certainly either merely condensed coagula or perhaps uterine polypi. Hence Mahon[9] appears perfectly justified in making the following remarks:—"The existence of moles, properly so called, is extremely doubtful, since they may all be referred to some

[1] Principles of Midwifery. ed. 7, p. 111.
[2] Médecine Légale, vol. i. p. 468.
[3] Art des Accouchemens, tom. ii. p. 367.
[4] Critical Introduction, p. 36.
[5] On Female Complaints, p. 130.
[6] Principles of Forsenic Medicine, p. 298.
[7] Médecine Légale, t. i. p. 478.
[8] Fernel, tom. i. p. 599.
[9] Médecine Légale, tom. i. p. 275.

one or other of the substances of which we have spoken, viz. a placenta, which had continued its growth, the fœtus having perished; the degenerated remains of the after-birth; coagulated blood; sarcomatous tumours, or polypi of the uterus. The two first cannot exist except after sexual intercourse: the other three may be found independently of it.[1] This is the distinction which it is of the greatest importance to make in questions of legal medicine, that we may not without cause compromise the reputation of the unmarried girl, or the widow of irreproachable life and conduct."

In this view the writer entirely coincides, and thinks the medical jurist would not be justifiable in pronouncing any such mass expelled from the uterus as proof of pregnancy, except he can detect in it either the fœtus or a part of it, or some other of the component structures of the ovum; and even then, without further proof, "we must not," to use the words of Morgagni,[2] "immediately doubt the woman's chastity, since, as has been said above, the placentula might have remained in the uterus formerly, in an abortion that had not been much taken notice of;" which remark he makes in reference to cases in which portions of placenta appeared to have been a long time retained in utero, from which they were afterwards expelled in the form of moles, when the women were advanced in life and many years widows;[3] as happened in the case related by Ambrose Paré,[4] in which a mole was retained seventeen years.

In the instances which have come under my immediate observation, the women were all either married or avowedly indulging in sexual intercourse, and the masses expelled, when examined, were found to contain the product of conception degenerated or greatly altered by disease. One of these substances, which is preserved in my museum, was expelled from the uterus immediately after the discharge of a healthy ovum, containing a well-formed fœtus of four months, at which period of pregnancy the woman, according to her own account, had arrived. The substance had the external characters usually considered as those of a mole, and was of the form and size of a large orange. When opened no trace of a fœtus could be discovered, but it was lined by the transparent membranes, and there was a small remnant of an umbilical cord, which was ragged at its unattached extremity; the fleshy envelope varied in thickness from an eighth to half an inch, the thickest part being that where the placenta was situated, the internal surface of which exhibited very remarkably the tubercular disease represented in Denman's ninth plate. Morgagni[5] relates a similar case, and quotes

[1] "Aussi sont-ce les seules productions que l'on rencontre chez les filles, et chez les femmes vivans dans l'état de chastité." Mad. Boivin, sur la Mole Vesiculaire, &c. p. 18.

[2] Epist. xlviii. art. 13.

[3] See Mém. de l'Acad. Roy. des Sc. for 1735; Vallisneri, tom. ii. cit. p. 2, c. ult.

[4] Lib. xxiv. chap. xl. xliii. p. 718.

[5] Epistles 48–9.

Hartmann and Guttermann. Mr. Lemon's case has been already referred to, p. 90.

This absence of the fœtus, where other parts of the ovum are present, is noticed also by Voigtel in describing different species of moles. "In others," he observes, "from an originally imperfect development of the ovum, or an injury to the fœtus at its first formation, it appears either as a shapeless mass, or *the fœtus itself is completely destroyed, and only its membranes and the placenta* continue to grow for a time and get thickened and fleshy, or filled with fluid only, or form membranous, fibrous masses, or hydatids, or assume other unnatural appearances."[1]

Some observations on molar gestation have been already made, p. 75.

3. *Uterine hydatids.*—Of the nature of these productions, and their necessary connection, or otherwise, with conception, there exists, as in the case of fleshy moles, a complete want of accordance in the opinions of authors. Some maintain that they are not necessarily the result of conception, while others as strongly, and, as it appears to me, with much greater reason and truth, consider them as the product of disease attacking the ovum. Without entering into lengthened details on this subject, it appears proper to quote a few of the most respectable opinions on each side of the question, before stating the result of my own experience on the subject. Dr. C. M. Clarke[2] thus expresses himself:—"It is probable that the existence of pregnancy is not necessary for the production of this disease. It has been believed to exist independently of this state; and perhaps a morbid condition of organised coagulating lymph may have the power of originating this disease under certain circumstances, but what these circumstances are, is not known." Gardien's opinion is that "hydatids may be met with in girls as well as women; however, although they are independent of sexual intercourse, they are much more frequently met with in women who have borne children, and especially when they have arrived at the turn of life."[3] Denman says, "These have been supposed to proceed from coagula of blood, or portions of the placenta remaining in the uterus, and this opinion is generally true; but there is sometimes reason for thinking that they are an original production of the uterus independent of such accidental circumstances, and sometimes the precursors of organic disease in that part."[4] Of these opinions I think we are justified in saying at least that there is so much of conjecture in them that they weigh very little in the determination of this point; and it is, moreover, to be observed that these writers admit elsewhere, as indeed do all who have written on the subject, that the existence of hydatids in utero is always accompanied by the ordinary symptoms of preg-

[1] Op. jamjam citato.
[2] Observations on the Diseases of Females, part ii. p. 115.
[3] Traité complet, &c. tom. i. p. 559.
[4] Introduction to Midwifery, fifth edition, p. 121.

nancy. The weight of authority appears to me very decidedly in favour of the necessary connection between these substances and previous conception. Beck, in the late edition of his work on Medical Jurisprudence,[1] thus expresses himself: "I will repeat again in this place what I have before endeavoured to prove by a reference to the best authorities, that there is no case on record where hydatids of the uterus have been formed *independent of sexual connection.*" Baudelocque and Voigtel consider them merely as a variety of the mole, and as such the result of impregnation.[2] Desormeaux thus speaks of them: "It is superfluous to say that the development of these masses of hydatids is most frequently, if not always, the result of conception: at first it is impossible to distinguish this affection from pregnancy; *or, to speak more correctly, pregnancy exists* with all its phenomena, and it is impossible to discover when the degeneration into hydatids takes place."[3] Velpeau is perhaps even more decisive on the point: his words are, "The mole and hydatids of the uterus, being but the products of conception degenerated, give rise to the same phenomena as true pregnancy."[4] "This, therefore," says Morgagni,[5] speaking of the true mole, "cannot exist in virgins, nor, as far as I know, that, in like manner which might, with more propriety be called a mola vesicularis, I mean a congeries of vesicles disposed after the manner of a cluster of grapes."

I shall quote only one other authority; to which, however, I attach very considerable value. Madame Boivin has published a very ingenious and satisfactory pamphlet[6] expressly on this subject, and brings forward a vast quantity of information connected with this affection, which she appears to have studied with unusual attention; and the result of her observations she announces to be, that hydatids in the uterus are, in all cases, the result of conception.[7] She notices the fact that these formations are not attached immediately to the internal surface of the uterus, but are surrounded by an investing membrane having all the characters of the *decidua vera;* and she maintains that the hydatids originate in the filamentous processes springing from the external surface of the transparent membranes of the ovum; in regard to both which points I coincide in her views, and have in my possession preparations showing both facts. My own belief, then, is that uterine hydatids do not occur except after sexual intercourse, and as a consequence of impregnation; never having met or heard of a case in which their presence was not accompanied or preceded by the usual symptoms of preg-

[1] Fifth edit. p. 165.
[2] Locis citatis.
[3] Article "Œuf humain," Dict de Méd. tom. xv. p. 387.
[4] Traité Elem. de l'Art des Accouch. tom. i. p. 217.
[5] Epist. xlviii. art. 13.
[6] Nouvelles Recherches sur l'origine, la nature, et le traitement de la Mole Vesiculaire, ou Grossesse Hydatique, 1827.
[7] Vide pp. 15, 24, and 56, Op. cit.

nancy;[1] in every instance under my immediate observation, the women supposed themselves with child, and when the contents of the uterus were expelled, there was found either a blighted fœtus or some other part of the ovum.

It may not be amiss to notice here an argument from analogy which has been brought forward against this view of the question, viz. that hydatids being formed in other situations, as the brain, &c., why may they not occur in the uterus also, independently of any such circumstances as intercourse or conception? To this I would reply, first, that the hydatids produced in the situations alluded to differ, *toto cœlo*, in their characters from those of the uterus; and, secondly, that whenever hydatids are formed, it is always in connection with serous membranes, which do not exist in the uterus until the ovum is deposited there, whose membranes are essentially serous.

Still it must be confessed that our knowledge on this point is by no means sufficiently precise, nor our collection of facts sufficiently extended to warrant us in pronouncing positively on the question, or asserting decidedly, in a case of suspicion, that a woman was pregnant, merely because she discharged hydatids from the uterus; except we could detect along with them some constituent part of the ovum, or in an examination after death find in the ovary the true corpus luteum, which ought to put an end to all doubt. It would be presumptuous and absurd to maintain that, because we had always found them in connection with one particular cause, there might not be some other also capable of producing them; and as there may be a doubt, we must let the accused have the benefit of that doubt.

Again, in giving an opinion we should be prepared to make allowance for such a case as this:—a woman loses her husband by death or departure, when she is, perhaps, in the third or fourth month of pregnancy; shortly afterwards she miscarries, and the placenta or some other portion of the ovum is retained, and gives rise to the production of hydatids. This new product may be retained for many months, and being then expelled, might very unjustly excite suspicion against a perfectly chaste person; for, although the result of impregnation, in such a case, it would obviously be no proof of a pregnancy occurring subsequently to the absence of the husband.

Such a contingency has been already noticed, p. 93, and appears to have happened in the case of a lady of very high rank in Scotland some years ago, who had been for two years previously living *absque marito:* an incautious opinion given on the nature of the accident was the unhappy means of causing a separation between her and her husband.

The occurrence of such cases renders it necessary to enquire

[1] Such also was the experience of Dr. Gooch. See Account of the Diseases of Women, &c. p. 242–3.

how long may such formations be retained in utero before their expulsion[1] In the cases which came immediately under the writer's own observation they were not retained in any instance beyond seven months, but instances of much longer delay in their expulsion have been recorded by others. Morgagni[2] says, "nor are examples wanting, of a long-continued dropsy being solved by a very great number of hydatids discharged from the uterus." Lossius[3] speaks of a widow who had the abdomen enlarged for more than five years before her death; on examination the uterus was found distended with hydatids. Percy, Litre, Jolly, Baudelocque, and Madame Boivin relate instances of the expulsion of hydatids from the uterus at ten, eleven, twelve and a half, and fourteen months after conception; and Dr. Ryan[4] says he knew a case of hydatids continue for fourteen years, after which time several pints of them were discharged mixed with purulent matter. Gardien,[5] Desormeaux,[6] and Velpeau,[7] agree in admitting that they may be retained in utero many years; but I have not myself met with any such case.

I may observe here, that hydatids have been occasionally found accompanying an otherwise healthy pregnancy,[8] one instance of which is deserving of notice, as connected with an individual who was afterwards highly distinguished as an anatomist and physiologist. A lady, four or five months pregnant, expelled a quantity of uterine hydatids, and subsequently, at the proper time, gave birth to a living child, who was afterwards the celebrated Beclard.

That hydatids have been mistaken for ova appears sufficiently proved, by the relation of cases in which women were said to have miscarried of several conceptions, as, for instance, in one case where the attendant reported that the lady had miscarried of seventeen ova; but any one who has ever seen uterine hydatids could scarcely commit such an error, or indeed confound them with any thing else: their immense numbers, their varying size, from that of a pin's head to that of a walnut, their connection with each other in bunches by fine thread-like pedicles, and the absence from their external surface of the flocculent villi peculiar to the chorion, effectually distinguish them from an early ovum. I was once urgently summoned to see a patient who was said to have miscarried of a bull-frog, and the matter appeared to the attendants

[1] In Madame Boivin's work, p. 74, there is a table showing the number of months which intervened in thirty-two cases between the commencement of pregnancy and the expulsion of the hydatids. Some interesting cases are detailed by Nauche in a well written article on this subject. See Maladies propres aux Femmes, partie i. p. 182.

[2] Epist. xlviii. art. 13.

[3] Obs. Med. lib. iv. obs. 16.

[4] Manual of Midwifery, 3d ed. p. 297.

[5] Traité des Accouchemens, tom. i. p. 559.

[6] Dict. de Méd. tom. xv. p. 388.

[7] Traité des Accouchemens, tom. i. p. 417.

[8] See Perfect's Cases, vol. i. pp. 251, 254.

put beyond all doubt by its being enveloped in a mass of *frog spawn:* on my arrival I found a stunted and deformed fœtus, of about four months, lying in a basin full of uterine hydatids about as large peas, and certainly very much resembling the substance previously described to me: when hydatids are thrown into a basin of water, there is generally blood enough to colour the water, and the appearance is happily described by Dr. Gooch[1] as like "white currants floating in red-currant juice." Some observations on the diagnosis of hydatid pregnancy will be made in the chapter on the combination of gestation with disease; for the present I shall only add a passage from Morgagni as deserving of great attention; his words are, "that neither of these kinds of molæ (the fleshy or the vesicular) are produced without a preceding conception, *and neither of them certainly by untouched and pure virgins;* that I remember to have read; there is beyond a doubt need of the greatest skilfulness and diligence in examining; nor less prudence in pronouncing, if at any time a woman, who is said to have abstained herself from man, should discharge a body from the uterus, which, at first sight, might seem to belong to one or the other kind; lest it should, perhaps, not be a placenta, but a mere concretion of blood or some excrescence which bore a resemblance to flesh, or the vesicles, whereof I have spoken."[2]

4. *Membranes expelled in dysmenorrhœa and other conditions of uterine derangement.*—The circumstances attending dysmenorrhœa have sometimes given rise to a suspicion of pregnancy and early abortion; because the female may have pains resembling those of labour accompanied by red discharge, and followed by the expulsion of a substance somewhat resembling the decidual covering of an ovum. But it only requires a proper examination, and enquiry into circumstances, to detect the difference between these two products, and to determine the real nature of the case. In the first place, then, we may learn that such occurrences are habitual with the person at every menstrual period, or at least frequently; the symptoms of pregnancy have not been observed, nor does the state of the breasts correspond to the existence of that condition. Secondly, the substance expelled in such cases will be found deficient in several of the characters of the true decidua; for although produced by an action in the uterus analogous to that by which it prepares the decidual nidamentum (see p. 1) for the reception and support of the ovum, it differs therefrom in two essential points; first, that it is a morbid product; and secondly, that not being intended, like the true decidua, to become an organ, or at least a medium, of nutrition for the ovum, it is not furnished with a structure such as would only be required for the performance of such an office; hence, it is thin, flimsy, and very unsubstantial in its texture, of a dirty white or yellowish appearance when slightly agitated

[1] Diseases of Females, p. 244.
[2] Epist. xlviii. art. 13.

in water, devoid of the soft, rich, pulpy appearance, deep vascular colour, and numerous foramina for the reception of the nutrient vessels from the uterus, which are always so distinctly observable in the true decidua, which however in one point it resembles, having its inner surface smooth, and the outer unequal, but of a ragged shreddy appearance, unlike that of the healthy uterine decidua, and it is, moreover, entirely destitute of the little cotyledonous sacculi already described (p. 90) as an essential character in the latter structure.[1]

In texture, it more nearly resembles that of the reflexa than any other structure; but no trace of the transparent membranes of the ovum can be discovered within it, or attached to it, and should it happen to come away entire, in the form of a hollow triangular bag, we never find within it a duplicature of itself forming an inner pouch or reflex layer, as in the case of the natural decidual envelopes of the ovum. Morgagni has given a very accurate account of this accidental product, as it occurred in the case of a noble matron of his country, who expelled it almost every month with pains like those of child-birth, having its external surface "unequal and not without many filaments that seemed to have been broken off from the parts to which they had adhered; but internally hollow, on which surface it was smooth and moist, as if from an aqueous humour which it had before contained."[2]

In far the greater number of instances this membranous structure is ejected by women who either are, at the time, or have been, affected with dysmenorrhœa; which distinction it appears necessary to make, because I have seen cases in which women who had got apparently quite well of that complaint have afterwards expelled these anomalous formations, and that, too, under circumstances which led to a strong belief that they were miscarrying; the menses having been suppressed for two or three periods, and some of the mammary sympathies experienced. It should also be observed that the same thing has occurred to women who had not been, at any time, habitually affected with dysmenorrhœa; but in whom, owing to accidental circumstances, suppression and other equivocal symptoms of pregnancy have preceded the expulsion of the membrane. This has been most frequently observed in married women who have remained barren, but sometimes also this membrane has been ejected for two or three periods after parturition, and then entirely ceased.[3]

Under such conditions of functional derangement in the uterus, especially when the excitement is of an inflammatory character, women occasionally expel solid substances of a fibrous appearance externally, and varying in size from that of a fig to that of an almond, which they resemble in form, being in fact moulded to the

[1] See also Dublin Medical Journal for Nov. 1836, p. 241.
[2] Epist. xlviii. art. 12.
[3] See Denman's Introduction, p. 163.

shape of the uterine cavity. These substances, when cut into, are found to consist either of a condensed coagulum of blood only, and then are homogeneous or nearly so throughout; or some of them consist of layers of coagulum, between which there is interposed a thin, membranous-looking stratum of lymph; and others, again, are a combination of coagulated blood with the membranous production first described, around which blood is effused and condensed before its expulsion from the uterus, in which case, when a section is made through the centre of the mass, it is found to consist of an outer coat of condensed coagulum lined by the membrane, the smooth surface of which is thus laid open.[1]

A case is described by Mad. Boivin, in which a similarly formed tumour was expelled from the uterus, but turned inside out, so that the smooth surface of the membrane was its external covering: this might happen, as she supposes, by the upper part of it having been the first detached from the fundus uteri by blood insinuating itself between the two surfaces, and forcing the adventitious sac inwards and downwards, until it was at last completely introverted, and of course its surfaces reversed.[2] We shall probably be correct in referring such productions to any cause capable of exciting a certain degree of irritation, or perhaps of inflammation, by which fibrine is poured out on the internal surface of the cavity of the uterus, and assumes a membranous texture, as we find happen in other hollow organs lined with a mucous membrane, as, for instance, in the intestines in cases of diarrhœa tubularis, and in the trachea and air-tubes; and hence we the more readily acquiesce in the belief that such concretions may form quite independently of the specific stimulus of conception, or of sexual intercourse, an opinion which is sanctioned by the experience of the best authorities. In the case related by Morgagni,[3] while the lady, by his advice, lived *absque marito*, the membrane was expelled every month, but on her return to her husband's bed, she conceived. Dr. Blundell says he is satisfied that the disease may occur in women of undoubted honour.[4] Desormeaux considers its production referrible to accidental causes independent of intercourse;[5] and lastly, Denman, who of all the moderns has best described this membranous formation, thus expresses himself:—

"As the first cases in which this membrane was discharged were those of married women, a doubt arose in my mind whether it was not really a consequence of early conception; but I have lately had the most undoubted proofs that it is sometimes discharged by unmarried women, and may be formed previous to, and without, connubial communication; and that the uterus has, occasionally, or

[1] For a good representation of such a formation, see Dr. Granville's Illustrations of Abortion, pl. xi. fig. 5.

[2] See Maladies de l'Uterus, &c. tom. ii. p. 419, and Atlas, pl. xix. fig. 3, 4.

[3] Loco jam citato.

[4] Diseases of Females, p. 260.

[5] Dict. de Méd. tom. xxi. p. 115, 16.

constantly, in some women, the property of forming it at, or in the interval between, the periods of the menstrual discharges. It seems particularly necessary to establish this fact, as the appearance of this membrane has more than once given rise to erroneous opinions and unjust aspersions. Nor is this the only circumstance in which some women, at each period of menstruation, have symptoms like those which accompany pregnancy or parturition."[1]

CHAPTER X.

ACCIDENTAL CIRCUMSTANCES—IDIOSYNCRASIES—BECCARIA'S TEST—STATE OF THE BLOOD, URINE, AND PULSE.

Under this head it is intended merely to notice certain peculiarities sometimes observable in pregnant women, which, although generally deserving but little attention in such an investigation, may still be remembered with advantage, on account of the constancy with which they occur in particular individuals, and the assistance which they may consequently afford in confirming or modifying our opinion in an unusually obscure case, when, as Denman says, it is prudent to avail ourselves of every advantage which a knowledge of the collateral circumstances can afford;[2] in such cases Schmitt thinks, that every phenomenon which has a claim to be regarded as a sign of pregnancy, however problematical may be its semeiotic value, ought to be taken into account, to assist us in arriving even at a probable conclusion.[3] In a first pregnancy, such a means of judging might not be available; but in the case of a woman who, having been several times pregnant, and having each time experienced certain peculiar affections, whether of a moral or physical character, is again conscious of a repetition of the same sensations, or the return of some particular physical sign with equivocal symptoms of pregnancy, the coincidence should not be disregarded, even although the accidental peculiarity should happen to be trifling in its nature,[4] or apparently unconnected with any action or sympathy likely to be induced by pregnancy: as a striking instance of this I may select the case of the wife of an esteemed medical friend, who, on every return of menstruation or pregnancy, displays on her right shoulder a bright pink streak, which immediately disappears on the termination of these conditions of her system, and is never seen at other times. Dr. Harvey lately mentioned to me the case of a lady who whenever she is pregnant becomes

[1] Introduction, pp. 161, 2.
[2] Introduction to Midwifery, p. 262.
[3] Critical Introduction, p. 44.
[4] "Quam quidem nonnullæ ita callent, ut ex quibusvis, levioribus quandoque, quin rarioribus, mutationibus certa conceptionis factæ signa petere norint."—Rœderer, Elem. Art. Obstet. § 142.

affected with the most uncontrollable passion for building; this, he assures me, has taken place several times, and always subsided when pregnancy ceased.

Of the more common accidental changes accompanying pregnancy, may be noticed the alteration so often observed to take place in the features and expression of the face, which has been made a subject of remark since the days of Hippocrates, who mentions it, and which some of the French writers[1] not unhappily term a decomposition of the features, which become sharper, especially the nose, which seems as if it were lengthened, and the mouth appears larger; the eyes are sunk, and often surrounded with a brownish or livid areola, and assume a languid expression; the whole body emaciates, except the breasts and abdomen, which grow proportionally fuller.

A marked change in the temper is very commonly observed also, so that a woman who was under ordinary circumstances extremely mild and sweet-tempered, immediately becomes, when pregnant, irritable and capricious, an effect which has been already noticed, p. 13. In some, drowsiness to a great degree is a constant attendant on pregnancy, so that they cannot remain quiet for a short time without falling into a doze; the patient, from whom Mr. A. Hunter removed the inverted uterus by excision, is mentioned as having had, "during gestation, a great tendency to sleep; which was often so excessive, that, notwithstanding all her exertions, she could not keep herself awake."[2] Another case has been mentioned, p. 34, in which the same affection was one of the earliest intimations which the woman had of her pregnancy, in several successive instances.

Strange appetites and antipathies are well known as frequent attendants on pregnancy in many persons, some of whom will long to eat unusual and even revolting articles, while others, immediately after conception, are seized with an unconquerable aversion to species of food which were previously particularly agreeable to them. I have seen several well-marked instances of this, and in particular one, in the case of a lady who assured me, that she always knew when she was with child by feeling a violent antipathy to wine[3] and tea, which, at other times, she took with pleasure. I had an opportunity of observing the accuracy of this indication in three successive pregnancies of the lady alluded to. A patient of Dr. Dewees used to consume enormous quantities of chalk when pregnant; and Capuron knew a woman whose principal food was long pepper, which she used to swallow by handfuls.[4]

Such caprices of appetite may at first, perhaps, only excite a smile; but experience appears to have sufficiently shown that their

[1] See Gardien, tom. i. p. 485.

[2] Annals of Medicine for 1799, p. 366.

[3] This particular aversion is expressly noticed by Hippocrates as a sign of pregnancy, "vinum odio habent, cibos aversantur."—De Infecundis, cap. 6.

[4] Traité des Accouchemens, p. 42.

indulgence cannot always be permitted without imminent risk of injury to the mother or child, or both; thus Dr. Merriman relates the case of a young woman who during her first pregnancy took a fancy to chew ginger, of which she consumed several pounds; her child was born small and meagre; its skin was discolored and rough, much resembling the furfuraceous desquamation that follows scarlatina: it lived in ill health a few weeks and then died. The fancy for ginger did not return in her subsequent pregnancies, and she gave birth to vigorous and healthy children. In a second case, indulgence in large quantities of gin and water was followed by the birth of a child which he describes as small and lanky, with a weak voice, its face wrinkled and ghastly, and its belly collapsed: its skin was mahogany-coloured and hung in folds all over the body, there being no muscular fulness to keep it distended; it lived in much suffering for about ten days, and then died in convulsions.[1] The writer lately attended, with Dr. Evanson and Dr. Alcock, the post-mortem examination of a child which had lived only nine weeks; at birth, an unusual fulness was observed about the perineum and anus, which increased rapidly until these parts became greatly protruded, and a tumour was formed of the size of a very large orange; convulsions came on, and the child died after much suffering. The tumour, on examination, was a perfect specimen of fungus hæmatodes, and the earliest instance of the disease known to the writer. In this case the mother had indulged, during all the time of her pregnancy, in continually eating brown paper: she had done the same in her former pregnancy, which was her first, and the child was still-born, under a foot presentation. I cannot, of course, undertake to assert that there was certainly a connection between the effect observed in the child and the depraved appetite of the mother; but the fact appeared to me sufficiently remarkable to be noticed. See p. 17.

The occurrence of pains in the teeth, face, and other situations, are, with some, the invariable accompaniments of pregnancy. In some women the same condition is accompanied by the development of dark blotches over the face and other parts of the skin, of which I have seen a few instances; and Dr. Harty informed me of the case of a lady, who, in her first pregnancy, observed brownish spots or patches on the sides of the forehead and temples, which she at first mistook for accidental soils on the skin; but they remained permanent; and when she became pregnant again, a further addition was made to them; so that, after several pregnancies, the dark marks extended so far down each side of the face that the lady was obliged to dress her hair in such a way as to cover them. The most remarkable circumstance in this case was the permanence of the marks, which almost always disappear after delivery.

Lecat relates the case of a woman whose face, in three successive

[1] Merriman's Synopsis, &c. p. 320.

pregnancies, became quite black.[1] Camper observed the same circumstance. The occurrence of salivation, in consequence of pregnancy, has been already noticed; as has also the return of diabetes mellitus in several successive pregnancies of the same individual. See pp. 19, 37.

Some women always have varicose veins during gestation, who are not subject to such an affection at any other time. Under such circumstances, especially if the woman appears to be in good health, and otherwise unaffected with any complaint likely to induce such a condition of the veins, their varicose state appears to the writer not unworthy of consideration as a diagnostic sign. Some women are much troubled with frightful dreams whenever they are pregnant. Dr. Lowder used to relate the case of a lady who was obliged to have a nurse sitting at her bedside all night, to watch her countenance while she slept, and to awaken her as soon as she perceived her exhibiting distress under the influence of her dreamy terrors. Disorder of the alimentary canal, disturbing the already irritated nervous system, is, probably, the most frequent cause of this affection: it may also be induced by irregular or undue circulation of blood in the brain; relief has been obtained by acting on such a presumption, administering aperients, and detracting blood by cupping on the nape of the neck.

According to Dr. Beccaria there is a peculiar kind of headach accompanying pregnancy, which he describes[2] as an acute pulsating pain in the occipital region; occupying particularly the part in which Gall places the organ of the instinct of reproduction: this pain, he says, is accompanied with giddiness on the least motion of the head, and with difficulty in supporting the light; it comes on suddenly, and continuing for some time, is succeeded by an inclination to sleep; after sleeping some minutes, the patient is said to awake free from the pain, and with a strong desire for food. This pain, he says, returns at nearly the same hour for about eight days, and often disappears without the use of any remedy. This symptom, according to Dr. B., commonly appears, unaccompanied by the signs usually laid down as denoting pregnancy, previous to the fourth month; and he observed it in women who were not aware of their pregnancy, and who did not even suspect the fact. Dr. Alexander Hamilton, also, enumerates headach[3] amongst the early signs of pregnancy, immediately consequent on the suppression of the menses: but headach, in whatever form occurring, may be produced by such a variety of causes, connected with derangements of the uterine system, or of the alimentary canal, that, except under very peculiar circumstances, its occurrence could hardly be made available as an assistance to our judgment.

[1] See other instances by Gardien, tom. i. p. 485.

[2] Annali Unaversali di Med., Sept. 1830. Archives Générales de Médecine, tom. xxiv. p. 443.

[3] On Female Complaints, p. 121, edit. 4th, 1797.

From the character of these occasional phenomena it must follow, as already observed, that in first pregnancies we can gain little or no information from such accidental peculiarities, but their constant occurrence in successive instances ought to give them value in our eyes; the degree of value, however, must depend altogether on the distinctness with which we can ascertain their existence, or the reliance which we can place on the sincerity and accuracy of observation of those who report them to us, and if we are satisfied on both these points, it will be prudent not to reject lightly, or undervalue the evidence derivable from such sources. "That we may not therefore," says Morgagni,[1] "take a true pregnancy for a false one, we must have a peculiar regard to the signs that are not present, as well as to those that are; and above all, if the woman has been pregnant before, we must consider whether the signs, from which she judges herself to be pregnant now, are the same that had preceded in the beginning at other times. For, by reason of this circumstance being despised—which is sometimes fallacious indeed, but not to be neglected for that reason—I have seen physicians fall into error," &c. I would wish to observe here, that this suggestion is by no means to be restricted, in its application, to the consideration of peculiar or unusual signs, but should be adopted as a general principle in the investigation of all cases;[2] of which those related by Morgagni, in proof of the above remark, are highly interesting illustrations. But, at the same time, we should be equally careful not to run into an opposite extreme, and exclude the idea of pregnancy because the existing symptoms happen to differ, however widely, from those that have been usually experienced by the woman; the necessity for such caution is abundantly evident from some of the cases already related, see pp. 46. 52, and is also strikingly enforced by the details of Schmitt's 22d case, 2d division.

The blood, urine, and pulse.—It is very generally asserted that the blood of pregnant women *always* presents the buffy coat and other characters of inflammation,[3] and this change in that fluid is even noticed by authors as one among the rational evidences of pregnancy.[4] The very general belief in this as a fact established, has probably arisen from the circumstance that pregnant women are seldom bled except when labouring under some form of inflammatory disease; but, experience has fully shown that no reliance whatever can be placed on the condition of the blood, as an evidence of pregnancy. It is quite obvious that a woman, exhibiting many of the symptoms of pregnancy, and yet not with child, may have her system under the influence of inflammatory action sufficient to cause the appearance of the blood frequently noticed in

[1] Epist. xlviii. art. 4.

[2] See p. 54.

[3] Burn's Principles of Midwifery, p. 208, ed. 7th. Denman, ed. 5th, p. 220. Blackall on Dropsies, p. 279-80. Scudamore on the Blood, p. 148.

[4] Gardien, vol. i. p. 487. Blundell's Principles of Obstetricy, p. 167.

pregnancy; and on the other hand the blood of pregnant women will be very often found not presenting the characters supposed to be peculiar to it. This I have seen proved in several instances, and perfectly recollect the first case which particularly arrested my attention on this point; it was that of a very fat and robust woman who was seized with puerperal convulsions, and her blood exhibited not the least trace of inflammatory character. I have also observed the same absence of such an appearance in blood drawn in the earlier periods of gestation to prevent abortion; but in making this remark, I must add, that at those periods, that is, up to the third or fourth months, the blood will be found, in the great majority of instances, presenting the modified characters of inflammation; especially in those whose pulse is much accelerated, or who are of a full habit, or sanguine temperament; but, if this be asserted as a general rule applying to every period of gestation, the exceptions will be found very numerous indeed: a remarkable instance of which was formerly noticed by the writer, in the case of a lady in the ninth month of pregnancy, whom it was judged expedient to bleed for a very distressing cough, accompanied with pain in the chest and great irritation of the bladder; the abstraction of blood gave her the most immediate and decided relief, but it appeared in every respect perfectly natural and healthy. "The popular notion," says Dr. Maunsell, "that the blood is always buffed during pregnancy, is, according to my opinion, (founded upon numerous observations,) merely a popular fallacy."[1]

A peculiarity in the urine of pregnant women has long been a matter of popular belief; and in the work of Savonarola, published in 1486, there is given a minute detail of the changes which that secretion undergoes in the different periods of pregnancy: up to about the sixth month, according to this writer, "the urine is clear, and of a pale citrine colour, with a cloud on its surface; and about the middle of the fluid, a deposit like carded wool; but as pregnancy advances towards its close, the urine becomes redder, and turbid when stirred." This condition of the urine, Foderé thinks entitled to consideration, having, as he says, "verified the accuracy of the observation."[2] Still more recently M. Nauche has brought this subject before the profession.[3] He speaks of it as a discovery of his own, and does not appear to be aware of the observations previously made by others: his words are: "By allowing the urine of pregnant women, or of nurses, to stand for some time, in thirty or forty hours a deposit takes place of white, flaky, pulverulent, grumous matter, *being the caseum or peculiar principle of milk formed in the breasts during gestation.* The precipitation is more readily procured by adding a few drops of alcohol to the urine." To this observation he subjoins a very strong case, in which he

[1] Dublin Practice of Midwifery, p. 68.
[2] Méd. Légale, tom. i. p. 435.
[3] See the Lancette Française; also the Lancet, No. 417. p. 675.

ventured to affirm the existence of pregnancy in a woman who was subsequently examined, both per vaginam and with the stethoscope, by several medical men, and pronounced not to be with child; but her delivery shortly afterwards evinced the accuracy of his previous diagnosis. The editor of the Lancet informs us in a note, that he had "applied the test in one case, and found it perfectly correct." I have myself tried it in several instances, and the result of my trials has been this: in some instances no opinion could be formed as to whether the peculiar deposit existed or not, on account of the deep colour and turbid condition of the urine; but in the cases in which the fluid was clear, and pregnancy existing, the peculiar deposit was observed in every instance;[1] its appearance would be best described by saying, that it looks as if a little milk had been thrown into the urine, and having sunk through it, had partly reached the bottom, while a part remained suspended, and floating through the lower part of the fluid, in the form of a whitish, semi-transparent, filmy cloud.[2] In some cases in which pregnancy was suspected, but did not exist, no such deposit was observed; but, it is superfluous to say, that there is such a host of accidental causes capable of altering the condition of the urine, as ought to make us very cautious indeed how we venture to attach credit to a symptom so equivocal. Still, should it be found, on further examination, that the urine, when in a favourable state for observation, constantly exhibits this peculiar deposit during pregnancy (and to this I have not met with, or read of, a single exception,) its absence would obviously be of considerable value in enabling us to decide against the existence of pregnancy.

The state of the pulse in pregnant women has been made a subject of remark since the days of Galen. Indeed, if we are to credit the records of history, the ancients attained to a discrimination in this matter which we can hardly hope to equal: such, we are told, was the tact of Erasistratus that he discovered that Antiochus was in love with his mother-in-law, Stratonice, by merely feeling his pulse; and even in the last century, sphygmic semeiology, as it has been termed, made high pretensions, and according to the subtle refinements of Fouquet, each separate organ of the body, when disturbed, had its own peculiar modification of the pulse; while others professed that from the same source they could discover, not only the existence of pregnancy, but the period to which it had advanced, and *the sex of the child.* But, while we smile at such extravagant notions, we must anticipate no less astonishment on the part of succeeding ages, when they find a writer of the present day gravely asserting, that the rapidity of the pulse and the progress of labour observe a constant ratio; so that, knowing the rate of the former, we may at once assign the state of the latter; and accordingly the

[1] See Dublin Journal, vol. vi. p. 422.

[2] Les urines coulent plus abondamment, se chargent d'un nubecule, et deposent d'avantage." Velpeau, Traité des Accouchemens, tom. i. p. 178. See also Capuron, des Accouchemens, p. 43.

author in question has constructed tables of reference on which (*mirabile dictu*) we can read off the point at which a labour has arrived, by referring to the number which expresses the rate of the pulse at the time, as we would other correspondents on a scale of equivalents.

I believe all that may be justly said on the subject is, that in pregnant women, especially during the earlier periods of gestation, the pulse is almost always stronger and more rapid than is natural to the individual at other times;[1] but we cannot tell, in a particular instance, what may be the exciting cause of the increased action; we cannot even be sure that it is not natural to the person; and at all events we are certain that there are a thousand circumstances of disease or accident which may equally produce it.

Vaginal Pulse.—Under this designation, Dr. Osiander,[2] of Göttingen, has described a sign of pregnancy, to which he professes to attach great importance. Owing, as he says, to the new action going on in the uterus during gestation, the uterine artery is enlarged, as is also, and in a like degree, the vaginal artery, the action of which is increased, so that its pulsations may be ascertained to be both stronger and harder, and its calibre greater than usual. During imminent abortion and other morbid conditions, he has observed the vaginal pulse to be quicker than the radial. The writer has no experience on this point; but such a test appears to him liable to the objections already stated, p. 86, to another physical sign of a somewhat similar kind.

CHAPTER XI.

PREGNANCY UNDER UNUSUAL CIRCUMSTANCES OF AGE, DISEASE —SPURIOUS OR SIMULATED PREGNANCY—WITHOUT CONSCIOUSNESS, IMPERFECT INTERCOURSE—SECONDARY OVUM.

Before entering on the last division of our subject, which will treat of the post-mortem examination, it appears necessary to advert to certain conditions in which a female may become pregnant, and her case be thereby rendered more obscure; as when, for instance, conception takes place—1. in early youth or advanced age; 2. during the existence of disease, especially of a kind calculated to prevent conception, or to render its occurrence very improbable; 3. without the woman being conscious of having incurred the risk; 4. under circumstances not likely to be followed by such a result,

[1] "Frequent et très variable pendant la grossesse."—Rochoux. "Les seuls caractères constans que j'aie observés dans le pouls sont la frequence et la vivacité, souvent avec de la plenitude et de la dureté."—Desormeaux. See also Burns, p. 212.

[2] Hannoverische Annalen, B. 1, H. 2, 1836.

as where copulation was only partially accomplished, &c. &c. ; 5. when a woman having two ova in the uterus, one of them is expelled and the other retained, and its vitality continued.

1. *The age of the individual.*—This may be such as, judging from what we observe in the ordinary course of nature, would appear either to preclude the idea of impregnation, or at least to render its occurrence extremely improbable. The limits of the generative faculty in women are, generally, those of the function of menstruation, which in these countries are usually from about the fifteenth, to the forty-fifth year of the female's life, but this is liable to a good deal of variety, for some begin to menstruate at earlier periods, such as the twelfth or thirteenth year, and others retain the function to a very late period ;[1] in some rare instances, also, women have been known to conceive before the catamenia had begun to appear,[2] and after their cessation.[3]

Conception before the age of fourteen is very rare in these countries, but there have been some instances of the kind, where menstruation was established at unusually early periods. It appears from the registry of 450 cases, kept by Mr. Roberton, of Manchester,[4] that ten girls menstruated in their eleventh year, nineteen in their twelfth, and fifty-three in their thirteenth : a few such instances I have myself known. Mr. R. mentions that the mother and grandmother of a girl, who menstruated at twelve, had become regular at the same age ; and that five sisters in one family menstruated at the age of eleven :[5] and he afterwards relates the earliest instance of pregnancy satisfactorily authenticated as having taken place in Great Britain.[6]

The case occurred in the practice of Mr. R. Thorpe, who was called to see the girl when attacked with convulsions in labour; the fœtus was full-grown, but still-born, and the mother did well. She had been employed in a cotton-factory, and was represented to

[1] La Motte says he knew a woman who had thirty-two children before she was forty-five, when her husband died, and she continued to menstruate regularly up to the age of sixty-one, the time of her death. Traité des Accouchemens, ch. xii. p. 71. Of seventy-seven cases noted by Mr. Roberton and Mr. Harrison at Manchester, in seventeen, menstruation continued beyond the age of fifty, of which two went on to sixty, and one to seventy. See Edinburgh Med. and Surg. Journal, vol. xxxviii. p. 254. For references to several other cases, see Davis's Obstetric Medicine, p. 239. Gardien relates a case in which menstruation continued regular and healthy up to the age of seventy-five, tom. i. p. 366.

[2] See pp. 28–9 ; and also La Motte's xxiii Obs. on which he remarks, "qu'une femme peut porter du fruit avant des fleurs." See also Mauriceau, Obs. 393.

[3] Velpeau, Traité, &c. tom. i. p. 182 ; La Motte, Obs. ix.

[4] Edinburgh Med. and Surg. Journal, vol. xxxviii. p. 231.

[5] North of England Medical Journal, p. 186.

[6] In the case related by Sir A. Cooper, Med. Chir. Trans. vol. iv. p. 490, menstruation was established at four years and a half; for reference to several other cases, see Davis's Obstetric Medicine, p. 236, and Beck's Medical Jurisprudence, 5th edit. p. 568.

have become pregnant in her eleventh year. Mr. Thorpe and the late Dr. Hardie were at the trouble of examining the registers of her birth and christening, and fully satisfied themselves, that she had really conceived during the eleventh year of her age, and that at the time of her delivery she was only a few months advanced in her twelfth year: her figure was that of a well-grown young woman, with fully developed mammæ; and it was ascertained that she had menstruated before she became pregnant.[1]

Of 133 cases registered at Göttingen by Osiander, nine menstruated at twelve years old, and eight at thirteen. Velpeau[2] says, he knows a young lady of fourteen as large and as strong as a woman of twenty; whose puberty was completely established at eight years and a half: it is said, that during the year 1816, some girls were admitted into the Maternité, at Paris, as young as thirteen years: and during the revolution, one or two instances occurred of females, under eleven, being received, in a pregnant state, into that hospital.[3] The following case, recently occurring in America, and witnessed by Dr. Rowlett, of Waisborough, Kentucky, who reports it, is a remarkable instance of sexual precocity and early pregnancy. Sally Dewcese, born the 7th April, 1824, in the county of Butler, Kentucky, began to menstruate at a year old, and the pelvis and breasts became developed in an extraordinary degree: she continued to menstruate regularly up to 1833, when she became pregnant, and on the 20th April, 1834, she was delivered of a female child, weighing seven pounds and three quarters. At the time of publishing the case, the child weighed eight pounds and three quarters, and the mother 100 lbs., and was four feet seven inches in height.[4]

Bruce mentions, that in Abyssinia he has frequently seen mothers of eleven years of age; and Dunlop witnessed the same in Bengal.[5] La Motte delivered a girl who had not completed her thirteenth year, and who had never menstruated;[6] and Sir E. Home knew two instances, in one of which a girl of thirteen, and in the other, a girl of twelve, gave birth to children.[7] The earliest instance of pregnancy, known to the writer, was that of a young lady who brought forth twins before she had completed her fifteenth year.

On the other hand, pregnancy very seldom occurs after fifty, especially in women who have not previously borne children; but instances had, from time to time, occurred at unusually late periods, in women who had formerly conceived. In the statement sent to parliament by Bartholomew Mosse, when endeavouring to procure

[1] There is a case of parturition at nine years of age, said to have occurred in England, in the German Ephemerides, dec. 3. an. 2. p. 262.

[2] Traité des Accouchemens, tom. i. p. 119.

[3] See Paris and Fonblanque, Medical Jurisprudence, vol. i. p. 257.

[4] Transylvania Medical Journal, vol. vii. p. 447, and the American Journal for November, 1834, p. 266.

[5] Beck's Medical Jurisprudence, fifth edition, p. 135, note.

[6] Traité des Accouchemens, Obs. xxiii. p. 52; see also Smith's Forensic Medicine, p. 493, note; and Ballard, note on Meizger, p. 485.

[7] Philos. Trans. for 1819, p. 61.

a grant for the Dublin Lying-in-Hospital, he mentions that eighty-four of the women, delivered under his care, were between the ages of forty-one and fifty-four; four of these were in their fifty-first year, and one in her fifty-fourth.[1]

Of ten thousand cases registered at the Manchester Lying-in-Hospital, four hundred and thirty-six of the women were upwards of forty years of age:

385	from	40 to 45.
12	in their	46th year.
13	"	47th.
8	"	48th.
6	"	49th.
9	"	50th.
1	"	52d.
1	"	53d.
1	"	54th.

Mr. Roberton observes, that as far as he could ascertain, and particularly in the three cases which were above fifty years, the catamenia continued up to the period of conception. The following case appeared in the Edinburgh Annual Register.[2] "In May, 1816, Mrs. Ashley, wife of John Ashley, grazier, of Firsby, near Spilsby, at the age of fifty-four was delivered of two female children, which, with the mother, were likely to do well.

The succession to an estate was disputed in France, because the mother was fifty-eight years old when the child was born: the decision was in favour of the fact.[3] Colomb adduces a similar case, and Knebel[4] two, one of fifty-two years, and the other of fifty-four. La Motte gives a very circumstantial account of two cases of much interest, in reference to this part of our subject, in both of which he attended the patients. The first was that of a woman who lived a life of celibacy up to the age of forty-eight, and then married, in the hope that her age precluded the possibility of having children, her menstruation also having become irregular: yet she soon conceived, but so convinced were her medical attendants that pregnancy was out of the question, that they treated her for dropsy, and injured her; she had, however, a favourable labour. The other case, mentioned by the same author, is still more remarkable: the woman declined marriage until she was fifty-one, from the fear of having a family; but no sooner was she a wife than she became pregnant, and had so quick a delivery that she was well before La Motte arrived, her labour not having lasted two hours.[5] I am informed by an eminent accoucheur of this city, (Dr. Labatt,) that he some time since attended a lady who was married when forty years of age, and who, after remaining barren for ten years, conceived, for

[1] Case of Bartholomew Mosse, presented to the house of commons, 1755.
[2] Vol. ix. part 2, p. 508.
[3] Mém. de l'Academie de Chirurgie, tom. vii. p. 27.
[4] V. pol. ger. ek. i. p. 161.
[5] Obs. xcvi. and xcvii. pp. 189, 190.

the first time, when she was past fifty, went to her full time, and, after a difficult labour, bore a living child.

Capuron[1] quotes several cases of child-bearing in advanced age, among which are the following:—Pliny records the case of Cornelia, of the family of the Scipios, who, at the age of sixty, bore a son, who was named Volusius Saturninus. Marsa, a physician of Venice, mentions that he treated a woman for dropsy who was really pregnant; but he was deceived by her age, which was sixty.

Valescus de Tarenta mentions a woman who continued to menstruate beyond sixty, at which age she bore her last child: Capuron adds, that it was generally believed in Paris that a woman, in the Rue de la Harpe, bore a daughter, at the age of sixty-three, and nursed it.

The writer felt bound to notice these cases of child-bearing at sixty and upwards, because they have been recorded on highly respectable authority, but, at the same time, he must declare, that, from his own experience, he feels great doubt of their accuracy. A late decision in the English court of chancery has shown, that the determination of this question may be a matter of great importance: in the case alluded to, an immense property was in dispute, and the sole question at issue was, whether a woman might have a child at sixty years of age. The attorney general argued, that there was no such case satisfactorily recorded, and said, that if credible evidence could be produced in support of the fact, he would give up the claim of his client. No such evidence was produced, and he succeeded.[2] No case has occurred, either within the writer's own observation, or of the particulars of which, as reported by others, he thought he had reason to be satisfied, at an age later than the fifty-fourth year; still, he by no means pretends to deny the possibility of such occurrences; on the contrary, he thinks that the facts here noticed should have the effect of making us extremely cautious in pronouncing against pregnancy, merely because the individual may have exceeded, by ten or fifteen years, the period of life after which the generative faculty ordinarily ceases to manifest itself; or because the woman may have lived for many years a married life without conceiving, and then shown symptoms of pregnancy. Two very remarkable instances of this came under my own observation. In one, the lady married when about twenty-four years of age, and remained, without any prospect of offspring, for more than nineteen years, when menstruation becoming suppressed, and the size of the abdomen much increased, with swelled feet, and other symptoms which were supposed to be the commencement of dropsy, I was requested to see her, and found that she was in the fifth month of pregnancy; she was delivered, in proper time, of a healthy boy, after an easy labour of about four hours. In the way of rational signs, this was one of the most obscure cases of pregnancy I ever met with, as there

[1] Médecine Légale, &c. p. 92–3, and 98.
[2] Lond. Med. and Surg. Journ. vol. iii. p. 686.

was not one of the ordinary sympathies distinctly established: no nausea, scarcely any change in the breasts, and, except the suppression of the menses, there was nothing to suggest the idea of pregnancy until the enlargement of the abdomen took place, which was attributed to dropsy, and the suppression was supposed to be owing to the lady's age; but I was, fortunately, able, at my first visit, to feel the enlarged uterus reaching half-way up to the umbilicus, and felt the fœtus by vaginal repercussion; quickening did not occur until near the close of the sixth month, viz. on the 15th of February, the last menstruation having taken place on the 10th of August, and delivered on the 21st of May.[1] In the same year I was requested to visit a Mrs. B., residing in James's street, who was married at the age of twenty, and was now pregnant for the first time, after twenty-four years of married life. She was afterwards delivered, under the care of a midwife, after a labour of eight or ten hours, being then in her forty-fifth year.

Dr. Gooch relates a case of this kind, which occurred in "a woman of forty-two years of age, and who had been married twenty-two years without ever being pregnant," when she at length conceived, and brought forth a child at the full time. This woman's medical attendant had been using various means for reducing the abdominal tumour, the idea of pregnancy being excluded, although she was within less than two months of her full time.[2]

Another condition, almost equally liable to mislead, is that in which a very long interval takes place between the periods of conception; of which the following case is a well-marked instance. In November, 1834, a lady came to Dublin from a distant part of Ireland to consult me on account of the state of her health, which had caused much doubt and alarm to her family. She had been married about eighteen years, and had one child, a son, then seventeen years old. After his birth she did not again conceive, although she continued in perfect health, and menstruated regularly up to the 2d of June previous to my seeing her, when the discharge appeared for the last time. After its suppression, she became affected with various equivocal symptoms which excited alarm, as pregnancy was supposed to be entirely out of the question: on examination, I told her she was between four and five months in the family-way, an announcement which she received almost with derision; but I advised her to provide a wet-nurse for the middle of March, on the 19th of which month she gave birth to a daughter. Van Swieten[3] saw a lady who, at five-and-twenty years of age, had borne a son, and, after having continued barren for the entire space of twenty years, was delivered of a second son, in the forty-sixth year of her

[1] The child is now nearly four years old; the lady has never menstruated since her delivery, but is perfectly healthy.

[2] Diseases of Females, p. 220; see also Mauriceau, Dernières Observations, Obs. lxi.

[3] Commentaries, sect. 1293.

age, although many thought she was only labouring under a delusion.

Neither can we, with safety, allow our judgment to be much influenced by the debility or advanced age of the husband or reputed father; first, because we cannot know to whom the right of paternity certainly belongs, and we must form our opinion by the state of the woman, not of the man: and secondly, because men of extreme delicacy of health, or much advanced in life may procreate: in Schmitt's 4th case, 2d div., the husband, who was a worn-out rake, acknowledged, that he had never been able to approach his wife in such a way as to render conception probable: but she was found pregnant: and as to the age to which a man may retain the generative faculty, I believe we may receive, as true, the assertion of Lord Erskine, in his speech on the Banbury Peerage case, that "there is no statute of limitations on the powers and faculties of man," on which occasion he quoted the case of Sir Stephen Fox, who married at seventy-seven, and had four children, the last of which was born when the father was eighty-one. I am assured, that there was lately residing on the Drumcondra road, near this city, a man whose eldest son was above sixty years of age, and his youngest, by a third wife, only nine months old;[1] and it is said that a late celebrated accoucheur, Mr. Rigby, at the age of eighty, was the father of four children at one birth.[2] In Schmitt's 9th case, 2d div., the husband was seventy when he married, and very doubtful of the possibility of his being a father; which circumstance, in conjunction with the small size of the uterus, its extraordinary hardness, the absence of fœtal movement, and the unaltered state of the breasts, rendered pregnancy very doubtful, not only in the seventh month, but even up to the time of labour.

Spurious Pregnancy.[3]—It is necessary to notice here a condition of the female system of a remarkable kind, most frequently observed about the turn of life, when the catamenia becoming irregular, previous to their final cessation, are suppressed for a few periods; and at the same time, the stomach being out of order, nausea or vomiting is experienced, the breasts enlarge, become sensible or even slightly painful, and sometimes a serous or sero-lactescent fluid exudes from the nipples and orifices of the areolar tubercles; the abdomen grows fuller and more prominent, especially in women of full habit, and constitutionally disposed to *embonpoint*, and the abdominal enlargement progressively increases, partly from deposition of fat in the integuments and in the omentum, but still more from the distension of the intestines by flatus, which, passing from one part to another, communicates a sensation like that produced

[1] Old Parr, who lived to the age of 152, did penance at 105 for lying with Katherine Milton, and getting her with child. He married his second wife in his 122d year." Paris and Fonblanque, vol. i. p. 172. n.

[2] Gooch's Compendium of Midwifery, by Skinner, p. 258.

[3] By some called simulated pregnancy; by others pseudo-pregnancy; the *fausse grossesse nerveuse* of the French writers.

by the motions of a fœtus; the nervous system is generally much disturbed, and the woman feels convinced that she is pregnant; an idea which, at the time of life alluded to, is cherished by the sex with extraordinary devotion, and relinquished with proportionate reluctance;[1] and not unfrequently at the end of the supposed gestation the delusion is rendered complete, and almost assumes the character of reality, by the occurrence of periodical pains, strongly resembling those of labour. This condition, although in most instances occurring at what is usually called *a certain age*, is by no means confined to that period of life; I have met it in young women[2] who had children both before and afterwards: but at whatever age it may occur, I know of no combination of circumstances more distressingly embarrassing to the practitioner, or more likely to render it difficult for him to form a decided, and at the same time, correct opinion, or to satisfy the anxious doubts, or combat the determined prejudice in the patient's mind as to her state; for, as Dr. A. Hamilton observes, she "acquires the most accurate description of the breeding symptoms, and with wonderful facility imagines that she feels every one of them," and so considers herself entitled to insist peremptorily on being with child, any doubt of which she considers almost as an insult, and resents ungraciously any attempt made to undeceive her, as tantamount to an imputation on her veracity. A lady of about forty-eight, not long since, assured me, that beyond all doubt she was pregnant, although the catamenia had been suppressed for two years, and she had, according to her own account, quickened six months before, but had not subsequently increased in size, nor could I discover about her any of the ordinary symptoms of pregnancy; an examination per vaginam proved, that the uterus was not enlarged. Within the last few weeks, my immediate attendance was required by a lady of about fifty, and mother of several children, with the last of which I attended her, about two years before. On my arrival at her house, she told me that she had been several hours in labour, and that the pains had latterly become so urgent, that she was apprehensive of being delivered before I should arrive; an opinion in which her nurse-tender, a woman of experience, coincided: and I should add, that it was just the time at which she had previously informed me that she expected to require my assistance. I found that she certainly had sharp periodical pains, accompanied with some effort, but on laying my hand on the abdomen, I found it soft and puffy, the umbilicus greatly sunk in, and no uterine tumour; in short, she was not pregnant at all. For the first three months of her supposed pregnancy, the menses were suppressed, but afterwards returned at irregular intervals; quickening was supposed to have taken place about the beginning of the fourth month, the abdomen

[1] A case has been already alluded to, p. 54, in which a lady persisted in entertaining a conviction of this kind for nine years.

[2] As did also Dr. Gooch. See his cases vii. and viii. Diseases of Females, p. 226. Dr. A. Hamilton, Female Complaints, p. 125. And Schmitt's 13th case, 1st div.

increased in size, and the internal motions continued to be felt up to the time of labour; but the lady remarked, that they were not so strong or distinct as she had been accustomed to feel them in former pregnancies, *nor of the same kind*, but she considered them as being certainly those of a child. This dissimilarity in the character of the sensation of motion is so constantly observed in such cases, that we should always be particular in our enquiries on the subject, and bear in mind the curious fact, that these spurious motions may be not only perceived by the woman, but seen and felt by others. See pp. 53—57. The case of Joanna Southcott, already referred to p. 64, whether we regard it as a delusion, or imposture, was, probably, one of the most extraordinary instances of the kind ever recorded.

Sometimes this condition of the system gives rise to the suspicion of dropsy, especially when accompanied, as it often is, by œdema of the feet and ankles, as noticed by Sydenham,[1] who says, "it proceeds from flatus, and, besides a swelling, causes the signs of pregnancy, and happens chiefly to widows, or women that did not marry till they were advanced in years; and such, in their own and midwife's opinion, feel the child move from the customary time to the usual time of delivery," &c.

"I had occasion," says Van Swieten, "to see this happen to a lady of distinction, the mother of fourteen children, who for eight years had ceased to conceive, and now firmly believed herself to be with child, having again felt all the uneasy symptoms which she had experienced so many times before; *nay, she was highly offended at all who dared to entertain the least doubt of it.* Her belly gradually increasing for five months, went afterwards down in the same gradual way, and she lived several years after in very good health: she was so much ashamed, however, of having been thus deceived, that, afraid of being laughed at by all her acquaintance, she kept the house for a whole year together."[2]

It would be easy to multiply examples of this kind, but in the way of illustration, I shall confine myself, for the present, to the relation of two cases, the details of which are particularly remarkable. The first is recorded by M. Klein, court-physician, at Stuttgard, and for the second, I am indebted to Dr. Labatt. Madame de B., aged forty-three, hysterical to the highest degree, having had thirteen labours, after an interval of five years, considered herself again pregnant. The catamenia, which had always been very regular, became suppressed, and being, as she thought, in the second month of gestation, she fixed upon the 15th May as the day of her confinement—a precision in the way of calculation which she had manifested on several former occasions; her labours taking place on the very day predicted by her. It had always been found necessary to bleed her several times during her former pregnancies, on account of a tendency to convulsions, and the blood always

[1] Swan's Translation, 5th ed. p. 541.
[2] Commentaries, sect. 1293. See also La Motte, Obs. xx. xxi. and xxii.

presented highly inflammatory appearances; and now the same necessity for venesection existed, and the blood exhibited the same characters; she experienced the same antipathies and predilections with regard to certain articles of diet, as during her other pregnancies; she quickened at the time expected, and the abdomen continued to increase in size; but she was uneasy, because, from time to time, the menses appeared, though not as usual: she became, towards the end of her time, distressed with bearing down and tenesmus. On the 15th May, pains began, and following the usual course, soon became very severe, and were accompanied with convulsions, which had also happened in all her previous labours. Her accoucheur, Klein, now arrived, and having made a careful examination, declared she was not pregnant at all; an opinion which was fully confirmed by another physician, whom, under the circumstances, it was thought desirable to call in. The lady recovered perfectly, and remained in good health.[1]

The other case occurred in this city not long since. A lady, who married rather late in life, and remained some years without conceiving, at length had the catamenia suppressed; from which, and other symptoms, she considered herself pregnant; she increased in size, and, at the expected time, pains came upon her, which were considered as those of labour; in consequence of which she sent for her medical attendant, who concurred in the opinion of her being parturient, and remained with her. At the end of forty-eight hours, as the pains continued severe, and she was not delivered, Dr. Labatt was called in to see her, in order to determine whether she ought not to be delivered with instruments, and what kind ought to be used; the attendant stating, that he was unwilling to use the crotchet, because, having several times, in the course of the night, applied the stethoscope, and heard the pulsations of the fœtal heart, he was assured of the child's continued vitality. Dr. Labatt, having examined carefully, suggested, that there was no necessity for the use of any instrument,[2] as the lady was not in labour, and for the best of all possible reasons, because she was not pregnant; which was the fact.

It should be remarked here, that these sympathetic affections or constitutional disturbances, occurring at the time that they might naturally be expected, as the usual changes connected with, or consequent upon, the termination of utero-gestation, had that condition really existed, are not confined to the human female, but have been observed in the lower animals also. One remarkable instance of this has been already detailed, p. 50, as occurring in a bitch,

[1] Journal der practischen Heilkunde; herausgegeben von Hufeland und Harles, 1815. Band ii. S. 3.

[2] Desormeaux tells us he was called on to decide whether the Cæsarean operation should be performed on a woman who was supposed to have been several days in labour; she was not pregnant, but had a scirrhous ovary, and was labouring under a violent attack of peritonitis. Dict. de Méd. tom. x. p. 447.

which being prevented from breeding, exhibited symptoms of uneasiness, and had a copious secretion of milk, at the time that she would have brought forth, had she been allowed intercourse with the dog. Such facts did not escape the observation of Harvey.[1] "Your little bitches," says he, "which are kept too plentifully, and thereupon admit coition, (without success,) are, notwithstanding, observed to be sluggish about the just time whereat they ought to puppy, and bark as if they were in distress, and likewise filtch away the young whelps from another bitch, and lick them over and cherish them, (as tenderly as if they were their own natural productions,) and fight eagerly to keep them from the true parent. Nay, some of them have milk, or beestings (as they call it) in their teats, and are obnoxious to the distempers incident to those that have really puppied."

Schmitt, not satisfied with having, well and faithfully, described the condition of spurious or pseudo-pregnancy, has proposed, in explanation of it, a theory which is so happy a specimen of rendering a thing, originally obscure, still more so by an explanation, that I hope I shall be excused for subjoining it, as a warning to those who may feel disposed to offer physical explanations of things inscrutable by finite faculties: his words are[2]—"It is as if impregnation proceeds from the brain, a matter which can only be comprehended, and that but obscurely, from the intimate polar connection (sympathy) known to exist between the cerebral and sexual system, together with a degradation (or depression) of the cerebral into the depths of the ganglionic system; together with a magnetic effort on the part of the latter to break through the limits of individuality (or those allotted to it)."[3]

When called on to investigate cases of the kind which we have been just considering, the greatest circumspection and caution are required in giving any decided opinion on the state of the patient, as well as in the treatment we prescribe; in reference to which two points it may be suggested, 1st, that in such cases the greater number of the rational signs must be considered as entitled to little or no consideration, if not altogether disregarded; and our reliance should be placed on careful manual examination, by which the abdomen, however enlarged, is found soft, puffy, and compressible, the umbilicus sunk, no abdominal tumour, and the uterus, per vaginam, unaltered; 2dly, whenever the circumstances are such as, while

[1] Generation of Animals, Ent's Translation, p. 540.

[2] "Es ist als wenn die Befruchtung vom Gehirne ausgehe, welches nur durch die (bekannter Massen) bestehende enge polarische Verbindung des Cerebral und Sexel-systems mit einem Versinken des Gehirns in die Tiefe des Gangliensystems und einem die Schranken des Individuellen durch zubrechen strebenden, magnetischen Hervortreten dieses Letzteren dunkel begriffen werden kann."

[3] The only case of pregnancy that I know of, to which this theory might be supposed applicable, is that of Jupiter when he brought forth Minerva from his head; when Vulcan acted as accoucheur, and facilitated the delivery by cleaving Jove's head with a hatchet.

they apparently favour strongly the notion of pregnancy in the apprehension of the woman herself or of others, leave room for doubt in our mind as to the fact of pregnancy, its existence, though doubted, should not be denied; and the woman should be treated for a time as if she were pregnant, and such remedies ordered as would be compatible with that state, and, at the same time, calculated to improve the state of the system generally; an object which we shall, in the great majority of instances, best accomplish by a suitable course of aperients, followed, perhaps, by light tonics, and the use of the tepid or cold bath.

The necessity for such caution will appear from the following case. Several years ago, after seeing within a short time some cases of spurious pregnancy, I was consulted by a lady, whom I knew to be past forty, and whose youngest child was then between seven and eight years old. She stated that the catamenia, which had been for some time gradually diminishing, had disappeared altogether for the preceding three months, that in every other respect her health was as good as usual, but that some of her friends had been joking her about being in the family-way: this idea I discouraged as improbable, and suggested, as delicately as I could, that her age would account sufficiently for the circumstance which had attracted her attention, and I ordered merely some gentle aperients, which she required. Two months afterwards she sent for me, and, to my surprise and consternation, informed me that she had quickened, and would require my attendance at such a time; adding, that she hoped I was now satisfied, that she was not quite too old to add to her family. It was all true; in due time she gave birth to a son, who is now a grown-up boy, and whom she frequently presents to me, with some observation, calculated to recall my former error to my recollection.[1]

2. *Pregnancy complicated with disease.*—Pregnancy not unfrequently takes place in diseased states of the system, which would, *à priori*, render its occurrence very improbable, and which, when it does occur under such circumstances, gives rise to unusual difficulty in recognising its existence. From this circumstance, have from time to time arisen some very lamentable mistakes in practice. Thus, women who have been long labouring under a general infirmity of health, and with very irregular menstruation, or even a total suppression of that discharge, may conceive, and under such circumstances, the phenomena of pregnancy are likely to be much obscured, or even their existence at all rendered very doubtful. How often do we see women conceive, when in an advanced stage of

[1] On this important subject of Spurious Pregnancy, and for cases illustrative of it, see pp. 49, 53, 56–7, 64. Ramsbotham, Practical Observations, part ii. p. 387. Gooch on Diseases of Females, p. 225. Perfect's Cases in Midwifery, vol. i. p. *293. Alexander Hamilton on Female Complaints, p. 125. Blundell, Principles of Obstetricy, p. 160. Schmitt, 7th, 8th, 13th, and 19th cases, 1st division; and Critical Introduction, p. 44. Gardien, Traité des Accouchemens, tom. i. p. 542. La Motte, ch. viii. de la Fausse Grossesse, p. 47.

pulmonary consumption, and their rapid progress to the grave only retarded until they are delivered. A case is mentioned by Professor James, of Philadelphia, in which a woman conceived after having had the menses suppressed for nearly two years before.[1] A similar case has been already noticed, p. 30, which occurred to the writer; and La Motte records an instance in which conception took place, for the first time, after the menses had been suppressed for seven years,[2] in a woman who had been many years married.

Diseases which increase the size of the abdomen, as they, on the one hand, often induce the supposition of pregnancy when it does not exist, so on the other hand, they sometimes render its detection a matter of great difficulty. Several instances have occurred in which women labouring under dropsy, even when the complaint was the result of serious organic disease, and had existed for a long time, have proved with child; and from the combination of circumstances thus produced great doubt and difficulty are likely to arise, especially when the woman is not herself aware of her condition, as happened to the wife of the king's counsel, mentioned by Mauriceau, who was treated for dropsy during seven months of her pregnancy, and then brought forth a child.[3] In a case of dropsy already noticed, p. 55, which occurred to the writer, pregnancy remained a matter of the utmost doubt until the seventh month; the woman died two days after delivery, and the liver was found tuberculated, hard as cartilage, and diminished to about one third of its natural size. In some instances very grievous errors have been committed. Mauriceau relates two cases of this kind, in one of which the woman had been nine years affected with dropsy in an extreme degree, but had, during that time, given birth to four children.[4] M. Chamseru had a patient who was tapped one hundred and sixty-nine times, and during the course of the disease bore and suckled two children, though during each pregnancy it was found necessary to tap her three times.[5] Foderé mentions two women who, being pregnant, were tapped under the idea that they had dropsy:[6] the uterus fortunately was not wounded; but in another case of distended bladder accompanying pregnancy and mistaken for dropsy, the practitioner tapped the patient; "death was the consequence, and on examination it appeared that the trochar had passed through both sides of the bladder, through the uterus, and even into the head of the child."[7]

[1] Hosack's Med. and Phil. Register, vol. iv. p. 422.
[2] Obs. ix.
[3] Tom. i. p. 73.
[4] Maladies des Femmes grosses, tom. ii. obs. 70 and 249.
[5] Quoted by Foderé from the Bullet. des Sciences Méd. d'Evreux, 1810, No. 18, p. 135. See also Mr. Langstaff's case, Med. Chir. Trans. vol. xii. p. 372, and another by Scarpa, in the Quarterly Journ. of For. Med. vol. i. p. 249, and Ingleby's Facts and Cases, &c. pp. 264 et seq.
[6] Médecine Légale, tom. i. p. 463–4.
[7] Lowder's MS. Lectures, quoted by Gooch, on Diseases of Females, p. 240 and note.

Avenzoar has left a confession that he was deceived about his own wife, whom he treated as dropsical, though she had passed her fourth month of pregnancy.

Such occurrences forcibly impress on us the necessity of strictly adopting as a rule of practice that, whenever a woman is so circumstanced that she may possibly be pregnant, she should not on any account be tapped for dropsy, or subjected to very active treatment until a full and careful examination has been made by competent hands, to ascertain whether she is pregnant or not, or has the uterus distended; and if her state be at all doubtful, the operation should be deferred until a further lapse of time shall have satisfied us as to the exact nature of the case;[1] nor should the previous performance of the operation, even though repeatedly had recourse to, induce us to relax in such a precaution, as will appear from the circumstances of the following case, which indeed affords an interesting illustration of many of the points just now under consideration. A lady of about thirty-five years of age, who had had six or seven children, became affected with abdominal tumours which were supposed to be ovarian; their formation was soon followed by dropsy, for which it was found necessary to tap her several times; but on one occasion, a few days after the operation, she, unexpectedly, miscarried; no suspicion whatever was entertained of her being pregnant, and had her gestation been more advanced, very deplorable consequences might have ensued.

Such a rule as that above laid down is not, of course, intended to interfere with those cases in which tapping is indispensably required during pregnancy, on account of the distress and danger induced by great accumulations of water in the abdomen.[2]

The combination of dropsy with pregnancy, the difficulties thence arising and their causes, together with the mode of forming our diagnosis, have been already adverted to, pp. 55, 59, and 64; and in addition, it appears, now, only necessary to suggest, that the difficulty in forming an opinion will be greater in those cases in which the dropsy has existed previous to the occurrence of conception, than when it supervenes on pregnancy, as it most frequently does: because, in the former case, the system is so disturbed before conception, that the natural sympathies and changes, which should follow that occurrence, are prevented from taking place, or they are so imperfectly manifested in consequence of, and disguised by, the pre-existing disease, that they cannot be distinguished.

Notice has been already taken, p. 64, of the distinctive signs in those cases in which the enlargement of the abdomen from dropsy may be ascribed to the existence of pregnancy.

[1] See Gooch, Diseases of Females, p. 240. Beck's Medical Jurisprudence, third edition, p. 81. Denman's Introduction, p. 242.

[2] As in the cases recorded by Scarpa and Mr. Langstaff, referred to above, see note 5, p. 120, the details of which are highly instructive.

Uterine hydatids and moles.—These formations have been already fully considered, Chapter IX., with reference to their nature and origin; and at present, I propose only to offer a few observations connected with the diagnosis, in those cases of pregnancy in which hydatids, or a mole are formed; in consequence of which, the real nature, or exact state of the case, is not unfrequently involved in much obscurity and doubt; and I fear that, *in limine*, we must acknowledge, that experience has not as yet established any criteria sufficiently constant in their occurrence, or distinct in their character, to entitle them to be considered as the essential indications, by which such a combination may be satisfactorily ascertained. All that is generally known to us, with certainty, in such cases, is, that the patient has had the usual signs of pregnancy, with irregular uterine discharges, and a distended uterus; but what its contents are, is not disclosed to us, until some of the hydatids, or the mole, are discharged.

However, several diagnostic signs have been proposed, such as the absence of fluctuation, or other evidence of a fluid being contained in the uterus after it has acquired a certain size, and the want of a solid body capable of being freely moved within its cavity; together with the non-occurrence of quickening, at a period more advanced than that at which it usually happens: but from what has been already said on these points, it is plain that the evidence which they furnish is quite too vague to warrant a satisfactory conclusion; witness the case alluded to, pp. 56, 114, from Schmitt, second div., case 9, in which all these peculiarities were observed, in consequence merely of a great deficiency in the quantity of liquor amnii, there being, as the event proved, no morbid condition connected with the pregnancy. In many instances of hydatids, the uterus has been observed to acquire quickly a size quite disproportionate to the period of pregnancy, and to be at the same time much softer than usual; but both these circumstances are subject to great variety. In one case, p. 98, the uterus was as large at four months as it generally is at six, but was not unusually soft. In another case, p. 75, I found the uterus, at five months, of the ordinary size, but as hard as a scirrhous tumour, and very sensitive; while Dr. Gooch speaks of having felt the uterus "less firm than in pregnancy, and more like a thick bladder full of fluid;"[1] and in a case related by Madame Boivin, the uterus was compact, hard, and painful, and at eight months had acquired only the volume which it presents at five months of ordinary pregnancy.[2]

Dr. C. M. Clarke asserts that there is "one other symptom which serves to distinguish this disease from all others, and from pregnancy, and this symptom is the discharge of an almost colourless watery fluid."[3] It does not consist with the writer's experience

[1] Diseases of Women, p. 244.
[2] Maladies de l'Uterus, &c. tom. i. p. 292.
[3] Observations on Diseases of Females, part ii. p. 118.

to assent to the accuracy of this, as a diagnostic sign, because he believes this occurrence to be no more than occasional: in several cases of hydatids, no such symptom was observed, and in other instances, there have been repeated watery discharges[1] during pregnancy, without the co-existence of any morbid condition; in a case on which he was consulted some time since, these watery discharges continued from the third month up to the time of delivery, when the lady gave birth to a healthy child. It is said, that the existence of this affection is sometimes disclosed to us by the occasional escape of some of the hydatids; but I have never known this to happen until the uterine action had been established for their final expulsion.[2]

From what I have seen, then, of these affections, or read in authors, I believe we have not satisfactory grounds on which to form an opinion, in the way of diagnosis, beyond this, that if a woman, after experiencing the ordinary symptoms of pregnancy up to the third or fourth month, is observed to be growing large with unusual rapidity, so that her size corresponds to a period much more advanced than her pregnancy really is, or is supposed to be, and she then becomes affected with irregular discharges from the vagina, sometimes of blood, and at other times of water, and, although perhaps the sixth or seventh month has arrived, no motion of a fœtus has been perceived by her, nor can it be felt by any mode of manual examination or repercussion, but the uterus is ascertained to be distended, and feels as if it were filled with something of a gelatinous consistence, the case *is likely* to prove, eventually, one of hydatids.

But, if (in conjunction with the same combination of collateral symptoms) the uterus be found of unusually firm consistence, irregular in form, and painfully sensitive, the case will *probably* terminate in the expulsion of a solid, or fleshy mole; but, that these can only be received as general rules, liable to very numerous exceptions, must appear obvious from the facts and observations contained in the foregoing pages.

3. *Uterine tumours.*—Tumours, especially of the hard fibrous kind, either embedded in the substance of the uterus, or attached to it, are frequently met with; and however large or numerous they may happen to be, they do not prevent conception, but they greatly disguise its result, and render its consequences much to be dreaded; though, when of small size, and situated in the upper part of the organ, neither gestation nor delivery are likely to be injuriously affected by their presence. The writer is in the habit of attending two ladies, one of whom has had eight children, and the other five,

[1] "Discharges of watery fluid from the vagina are not unfrequent during pregnancy, and generally depend upon secretion from the glands about the cervix uteri."—Burn's Midwifery, seventh edition, p. 232. See a well marked case in Ingleby's Facts and Cases, &c. p. 267.

[2] See Nauche. Maladies propres aux Femmes, partie i. p. 188.

with easy labours and good recoveries; the former lady having two fibrous tumours, about as large as walnuts, on the anterior surface of the fundus uteri; and the other having one tumour, of the same kind and size, just over the entrance of the Fallopian tube; these tumours are not perceptible till about the fourth month of pregnancy, and have never given any trouble. In a case which occurred at Bristol, in 1835, there were found no less than twelve of these tumours attached to the uterus, some of them as large as an orange; the labour ended fatally, in consequence of a rupture of the vagina under peculiar circumstances.[1] When such tumours acquire great bulk, and pregnancy occurs, they give rise to a combination which imposes extraordinary difficulty in the way of forming a correct diagnosis, and is, moreover, fraught with fearful danger to the unhappy sufferer.[2]

The different functions are often previously so disturbed, that any alteration in their exercise, from which, under ordinary circumstances, we should receive assistance in forming our opinion, is now rendered unavailable in the investigation; and when a period has arrived, at which the condition of the uterus might be readily ascertained, we are often to a great degree deprived of our most valuable kind of information—namely, that which is derivable from the physical changes effected in the organ itself, and from the nature of its contents: the distended state of the abdomen, and the extreme tension of its parietes rendering it oftentimes impossible to recognise, externally, the exact form or condition of any of the contained organs, and the obstruction of the pelvic cavity may be such as greatly to impede, or even altogether prevent, the possibility of making the ordinary examination per vaginam; as in a case to be related presently.

Under such circumstances, by a patient examination with the hand, we may be fortunate enough to detect the active motions of the fœtus; or the application of the stethoscope may have the happy effect of revealing to us the true nature of the case. Should these means, however, not be successful, we must then form our opinion from a careful consideration of all the rational signs or sympathies that may have been noticed, especially the mammary changes, among which the state of the areola deserves particular attention; and we may also be assisted by the distinctness with which the sensations of fœtal motion are asserted to have been felt, by a woman well acquainted with them from experience, and without any motive for deception.

Perhaps I cannot better illustrate the extreme difficulty that may attend an investigation of this kind, than by the relation of a case, the particulars of which have been already fully detailed elsewhere;[3]

[1] See Lond. Med. Gazette for August 29, 1835, p. 763.

[2] See Cruveilhier, Anatomie Pathologique, liv. xi. pl. 5. Dr. Ingleby's Facts and Cases in Obstetric Medicine. Troussel, as quoted by Madame Boivin, tom. i. p. 320. Voigtel, Semeiologia Obstet. p. 59.

[3] See Dublin Medical Journal, vol. vi. p. 418.

among which were combined the following circumstances, rendering the occurrence of conception almost incredible, and the detection of pregnancy extremely difficult:—1st, several years of married life without conception; 2d, a pre-existing morbid tumour in the abdomen, which, even at the time of marriage, was of such a size as to render the consummation of that rite nearly impossible; 3d, the continued growth of the tumour, which, long before the occurrence of impregnation, so filled the cavity of the pelvis as to impede strongly the introduction of a common catheter into the bladder; 4th, the impossibility of making an examination per vaginam.

On the 17th May, 1834, I was requested to see a lady, in consultation with Mr. Hugh Carmichael. She had been married in September, 1830, and had not had any child, nor ever been pregnant, as far as she knew. On the 5th April, 1833, Mr. Carmichael had been called to see her, in consequence of inability to discharge the contents of the bladder, when he ascertained the existence of a tumour in the pelvis, which rose up into the right iliac fossa, and filled the pelvic cavity so completely, as to obstruct the passage of the catheter into the bladder, to such a degree, that Mr. Carmichael was obliged to use a force which nothing but the exigency of the case would have induced him to venture on, but which, under the circumstances, was absolutely indispensable; he also observed, at the same time, that the bladder was much more distant than natural from the external parts, as more than four inches of the catheter were passed, before its point entered the urinary reservoir. Her general health had been delicate, the functions of the bladder and rectum occasionally disturbed, and she was often affected with irregular pains through the pelvis, and along the inside of the thighs; but menstruation had continued perfectly regular up to February, 1834, on the 14th of which month the discharge appeared for the last time. Towards the beginning of April her symptoms had become much aggravated, she experienced great general distress and debility; her stomach became excessively irritable, and the tumour more painful than usual; she got pain in the back and toothach; she had also suffered a great deal from irritation of the bladder, and had had suppression of urine for several days a short time before my visit; she also complained of a most distressing sense of pressure on the lower part of the rectum. On examination, I readily ascertained the presence of an immense tumour, occupying almost the whole right half of the abdominal cavity, ascending as high as the ribs on that side, and dipping down into the cul de sac, behind the vagina, so low, as to be within less than an inch of the external parts, and so completely filling the cavity of the pelvis, that it was with difficulty the point of my finger could be inserted between it and the symphisis pubis, but by no means could the os uteri be reached. The tumour was every where of a very firm consistence, amounting almost to cartilaginous hardness, and was uneven and knotty on its surface. I also ascertained very distinctly, by external examination, that there was a

second tumour, more to the left, but evidently in close connection with the former. This second tumour, which was not nearly so high in the abdomen, felt softer and more even on its surface; neither of the tumours was very sensitive, and there was only one spot which was tender on pressure. Her general health she considered but little impaired; her pulse was tranquil, her appetite tolerably good, and she slept well. As she complained of a good deal of pain in one of the breasts, I thought it necessary to examine these organs, and in doing so, I observed what appeared to me just the dawning of the characters which mark the areola of pregnancy, but there was hardly any prominence of the breast itself; however, on enquiry, she informed me, that naturally, she had no mammary development at all, and that small and flat as the breasts then appeared, they were somewhat larger than they had been two months before. Connecting this appearance of the areola, and the state of the breasts, with the fact of suppression of the menses, and the period of its occurrence, and with the existence of nausea and vomitings, I thought it right to suggest to her husband and Mr. Carmichael just the *possibility* that these new features in the case might arise from pregnancy; adding, that I hoped it might not be the case, as such an occurrence would be but too likely to aggravate the evils already existing. I felt bound to say thus much, from the circumstances presented to my notice; although, from the immense amount of disease and its situation, I really thought the occurrence of impregnation hardly within the limits of belief.

I did not see the lady again until July 15, when I found the abdomen considerably increased in size, and instead of its former lateral enlargement, it had become generally prominent. The hard tumour at the right side seemed smaller, while the one to the left was much larger and softer, with an indistinct feeling of fluctuation; the left tumour now overtopped the other an inch or two, and the umbilicus was raised nearly to the level of the surrounding integuments. On examination, per vaginam, the tumour was felt as before, rendering the introduction of the finger impossible, except by great force, and even then not more than half of it could be introduced; I need scarcely add, that I could not reach the os uteri. I now suspected, still more strongly, that she was pregnant, and that the tumour to the left was a gravid uterus, of which it had very much the feel. On asking whether she had, at any time lately, experienced any particular sensation in the left side, she told me, that for the last week or two, she had repeatedly been conscious of an indistinct sensation of very slight motion, "as if wind had suddenly changed from one spot to another, but that she could not imagine what it was, for she was sure it was not wind." I now examined the left tumour with the utmost care, but could not detect any thing like the body or limbs of a fœtus; and I may observe here, that this kind of examination was at all times rendered particularly unsatisfactory, by the extreme tension of the abdominal integuments, and of the walls of the uterus, caused by the immense

solid bulk contained within the cavity of the abdomen. Her general health was now greatly improved, and she felt cheerful as to her situation: the only thing of which she complained much was the occurrence of weaknesses, amounting almost to fainting, which she frequently experienced; but these are too often the accompaniments of pregnancy to attract much attention from the practitioner. On this occasion I examined the condition of the urine, and found that it exhibited exactly the kind of deposit already described, page 106. I also examined with the stethoscope, and heard distinctly, in the upper part of the right lateral region of the soft tumour, a sound much resembling the placental murmur; I could not detect the pulsations of the fœtal heart, but, as I sat by her bedside, the slight motion, already described, occurred, and I felt it; in the expectation of which, I continued the manual examination for considerably more than an hour, alternating pressure of the tumour in different directions, with the application of my hand spread over the abdomen, and there allowed to remain quiet, while I engaged the patient in conversation; the sensation appeared to me such as would be produced by the movement of a very small fœtal limb, but it was singularly feeble and indistinct. I thought I was now justified (indeed called on) to suggest to her the great probability of pregnancy, of which, strange to say, she did not entertain the most remote idea.

August 29.—The existence of pregnancy was now no longer doubtful, for, although I could not as yet detect the pulsation of the heart of the fœtus, nor feel its limbs or body by external pressure, I succeeded in feeling, very plainly and repeatedly, its voluntary movements, by again keeping my hand for a long time spread over the left side of the abdomen. Vaginal examination was still equally impracticable, there being no possibility of approaching the os uteri.

September 25.—On this day, for the first time, I recognised the pulsations of the fœtal heart, beating about 150 in the minute, and most distinctly audible in a line from the umbilicus to the upper and interior point of the os ileum of the left side: the patient's state of health was greatly improved, she had got a little more flesh, and was able to take a good deal of walking exercise; the breasts had increased a little in size; but the characters of the areola were still very imperfectly marked, in which state they continued throughout; a defective development which, according to my experience, is to be referred to the co-existence of the organic disease.

On the 11th of November labour supervened, and the Cæsarean operation was performed by Mr. Porter; twenty-one hours after which the patient died.

Permission having been obtained to open the body, the examination was made next day by Mr. Porter, Mr. Collis, and myself, with the assistance of Mr. William Day. On turning aside the abdominal coverings, the tumour came prominently into view, rising up out of the pelvis, and occupying the right half of the abdomen, as

high as the ribs of that side. The uterus lay to the left, but was lifted completely out of the pelvis, so that even the os uteri was altogether above the brim, and pointed towards the abdominal ring of the left side; the bladder, also, had undergone a similar change of place, and the cavity of the pelvis was so entirely occupied by the tumour, that the point of the finger could not pass into it from above. The upper half of the tumour was quite unattached to any of the surrounding parts except the uterus, and Mr. Porter, by drawing this part of it forwards over the symphisis pubis, raised the whole mass out of the cavity of the pelvis, to the peritoneal lining of which the tumour was attached by several membranous bands, apparently the result of inflammation; the vagina was cut across and the parts removed. The morbid growth was now at once recognised to be a fibrous tumour growing from the substance of the uterus, and covered with the peritoneum, which naturally forms the investing membrane of the latter organ; it had sprung from the posterior surface and right side of the uterus; the part of it which formed the medium of attachment, measured between nine and ten inches in circumference, and occupied nearly one half of the whole length of the organ, comprising the upper part of the cervix and the greater part of its body. In form, the tumour was kidney-shaped, with its concave edge towards the uterus; its length was between eleven and twelve inches, and its average breadth five and a half: the portion of it which was embedded in the pelvic cavity was of greater dimensions than any other part, measuring transversely five and a half inches; from before backwards, five; and in depth, four and a half inches; and *its circumference in that situation was sixteen inches*, while above the cavity of the pelvis, its thickness did not amount to four inches, and its circumference did not exceed fourteen: from this circumstance, conjoined with the fact already ascertained, that the tumour had grown from the posterior part of the cervix and body of the uterus, as well as from the history of the growth of such tumours generally, it appears perfectly plain that the first growth of the tumour must have been in the cul-de-sac, between the rectum and vagina, where it formed several superficial adhesions with the surrounding pelvic peritoneum, which of course fixed, and detained it in that situation, where it continued to grow until it completely filled all the space there afforded; when its further increase was accommodated by its rising into the abdominal cavity, carrying with it the uterus, of which it was a part, and also the bladder.[1] The parts, as removed, weighed nearly ten pounds, so that the tumour must be about eight pounds in weight; its external surface

[1] In a very valuable and instructive paper by Dr. Ingleby, inserted in the 6th volume of the Dublin Journal, there are (p. 341, *et seq.*) some very apposite remarks on the connection of these fibrous tumours with pregnancy and labour, and a highly interesting case is detailed in illustration; some of the particulars of which strikingly resemble those under our present consideration.

was very vascular, containing vessels as large as a goose-quill, passing into it from the uterus; its consistence was remarkably dense and solid to the touch, and when cut into, its structure was found to be strictly fibro-cartilaginous; the *corps fibreux* of the French pathologists, or that species of tumour to which Baillie has applied the name of Fleshy Tubercle.

In a case related by Dr. Ashwell,[1] the lady, who was forty-four years of age, had been married fourteen years, and gave birth to a child six years after marriage, but, during the subsequent eight years, was not again pregnant. When visited in January, menstruation had been suppressed from the July preceding, but she had had irregular gushes of blood: in September, an abdominal tumour was discovered at the right side; and in November, a second at the left side: she had occasional nausea and vomiting, and several of the early symptoms of pregnancy; but even in January, the sixth month, the child could not be felt, nor any opinion formed as to the character of the uterine contents, though the cervix had lost a considerable portion of its length, and the body of the uterus was evidently enlarged. Labour came on in the eighth month, with placental presentation, delivery was effected; and the woman died. On examination of the uterus, there were found, on its anterior part, tubercles of semi-cartilaginous hardness, two as large as cob-nuts, and there were two others as large as oranges, embedded in the substance of the organ. This also was a case of extreme difficulty to form a correct opinion of, but still, not nearly so much so as that previously detailed by the writer, in which any examination per vaginam was utterly impossible.

4. *Ovarian tumours.*—Enlargement of the ovary is another disease which may either simulate pregnancy, or co-exist with it,[2] and the abdominal enlargement increasing may be mistaken for the progress of the disease; when both ovaries are affected, pregnancy is of course much more improbable, yet it has occurred. In a case formerly noticed by the writer, a lady with ovarian enlargement on both sides, and of considerable size, became pregnant, and her true condition was not recognised until pregnancy was very far advanced; when the application of the stethoscope detected the pulsations of the fœtal heart. In another case, also, related by Mr. Hewlett, both ovaries were found extensively affected with malignant disease, and the tumour formed by one of them presented a serious obstacle in labour:[3] the morbid affection appears, from the details given, to have made rapid progress after the occurrence of conception; which, however, might take place, even though there co-existed an immense amount of disease in the ovaries, provided a small part of one of them retained its natural structure; for I think we may believe, with Morgagni,[4] that a woman may conceive, if

[1] Guy's Hospital Reports, No. ii. p. 316.
[2] Gooch, p. 239. Merriman's Synopsis, pp. 58 and 240.
[3] Medico-Chir. Trans. vol. xvii. p. 226.
[4] Epist. xlvi. art. 28.

there remain as much of one ovary, sound, as belongs to one mature vesicle.

The observations just made on uterine tumours will, for the most part, apply to the cases now under consideration; in which a proper examination of the uterus per vaginam will very often enable us to detect satisfactorily the true nature of the case: to this examination, however, the size and situation of the tumour, by obstructing the passage of the finger, may present a great impediment, as it did in the case last alluded to;[1] or the uterus may be raised so high by the growth of the tumour as to be altogether out of reach; of this the writer has met with two well-marked instances. On the other hand, the existence of such a disease has repeatedly given rise to the suspicion of pregnancy when that condition did not exist. In the celebrated case of the Demoiselle Famin, published at Berlin and Paris by Valentin, in 1768, a charge of pregnancy and child-murder was erroneously instituted, in consequence of an extreme case of ovarian dropsy. The general rules of diagnosis in such cases have been already noticed, p. 63. Several very interesting observations on this subject are contained in Dr. Hamilton's paper on enlargement of the ovary.[2]

5. *Extra-uterine fœtus.*—The writer had once an opportunity of examining a very remarkable case, which presented a combination that could hardly fail to be attended with infinite doubt. A woman was received into the Cork-street Fever Hospital, in 1828, with considerable enlargement of the abdomen. Her history, as far as it could be learned, was, that eight years before, she had been in labour, which, after continuing for two days, suddenly ceased, and the child, as she expressed herself, rose up into her stomach; no delivery followed. After remaining in bad health for about two years, she again experienced the symptoms of pregnancy, and gave birth to a child, which did not survive; but the former child still remained in the cavity of the belly, and during its continuance there she bore three children, the last of whom lived. Ultimately a fistulous opening formed near the umbilicus, which was enlarged, and the original child removed; it was in a state of wonderful preservation, measured twenty-two inches in length, and had attached to it about two feet of the umbilical cord.[3] A case of a somewhat similar kind has been recorded by Dr. Steigertahl, in which the woman lived in good health to the age of ninety-four, with a full-grown fœtus in the abdominal cavity for the last forty-six years of her life, during which period she bore two other children.[4]

6. *Polypus, scirrhus, prolapse.*—Some of the most formidable diseases of the uterus have been found not incompatible with

[1] See also Merriman's Synopsis, p. 241.

[2] Practical Observations, part i. p. 71.

[3] A notice of this case was published by Dr. O'Reardon in the Medico-Chirurgical Review for October, 1828.

[4] Vide Philos. Trans. vol. xxxi. p. 126.

conception, and even the completion of the full term of gestation. Thus, instances of the concurrence of polypus uteri and pregnancy have been several times witnessed;[1] and in some cases, the placenta has been found attached to the polypus.[2] The writer has a preparation in which an early ovum is thus connected. Levret,[3] Bach, Jöerg, and Dr. Macfarlane have recorded cases in which the fœtus reached its full time under such circumstances. In the year 1833, I was brought to see a poor woman, in consequence of the descent of a polypus into the vagina immediately after delivery. Even cancer and fungoid diseases of the uterus have been proved not to prevent the occurrence of pregnancy,[4] and a scirrhous cervix has been found an obstacle in the time of labour, even to such a degree as to produce rupture of the organ, by its efforts to overcome the resistance.[5] Gardien expressly states, that numerous facts within his knowledge have proved to him, that women may carry their children to the full time, although labouring under cancer in the ulcerated state.[6] A most remarkable case has been recorded by M. Neyzonis, in which the woman died undelivered; the parietes of the uterus were found carcinomatous, and three inches thick near the fundus.[7]

The writer was, not long since, called to see a lady, whose whole vagina was filled with an immense crop of cauliflower, or watery excrescences, giving forth a profuse and most offensive discharge; the uterus was found to be enlarging, and apprehensions were, in consequence, excited that the diseased growths had seized upon the uterus also, and were distending it. On examination, he found sufficient evidence to justify him in pronouncing the lady to be in the fifth month of pregnancy, which the event confirmed; and, in due time, she gave birth to twins.

Women have been impregnated, although afflicted with complete external prolapse of the uterus. M. Guillemot has written a very interesting paper on this subject, in which he has collected, from various sources, nine cases of the kind; the first two of which are particularly remarkable, as examples of gestation accomplished

[1] See Gardien, tom. i. p. 443. Gooch, Diseases of Females, p. 290. Dr. Beatty in Trans. Assoc. Coll. Phys. Ireland, vol. iv. p. 1. Lond. Med. and Phys. Journal, vol. xxvi.

[2] See Glasgow Medical Journal, vol. i. p. 422. Bach. Mayor de Polypis, quoted by Cooper in the Surgical Dictionary, article *Polypus*.

[3] Mém. de l'Acad. Chir. vol. iii. p. 513.

[4] See case by Dr. Beatty, Trans. Assoc. Coll. Phys. vol. i. New Series, p. 116; and several cases quoted by Madame Boivin, tom. ii. pp. 17, 18.

[5] See Burns's Principles of Midwifery, 7th edit. p. 96, note, and p. 401. Clarke on Diseases of Females, part i. p. 213. Denman's Introduction, &c. ed. 5, p. 363. Ould's Midwifery, p. 146, 7. Morgagni, epist. xlviii. art. 39. Arch. Gén. tom. ix. p. 389. Madame Boivin, tom. ii. p. 52, et seq.

[6] Traité d'Accouch. vol. i. p. 430. See Raige Delorme, Dict. de Méd. tom. x. p. 464.

[7] Dict. des Sciences Méd. tom. iv. p. 237.

where the prolapse was complete.[1] In the third case, impregnation occurred while the uterus was completely external.[2] The circumstances of this case were very remarkable. The woman was married at twenty years of age, and during twenty-one years "son mari fit des tentatives infructueuses pour la rendre mère; enfin au bout de ce tems là, il parvint à dilater l'orifice de la matrice qui étoit hors des grandes levres, et consomma l'œuvre de la génération." The account of the labour and delivery, &c. are full of interest. Another of the cases happened in the practice of the great Harvey, who gives us the following account of the matter: "And now at this time, it (the prolapsed uterus) was large and dangling between her legs. It grew at last bigger than a man's head, being then a hard tumour, and hanging downe to her knees, did much pain her, so that she could not goe but upon all foure. I did suspect it to be a cancer of the wombe, and therefore did bethink my selfe of a ligature and cutting it off: but the following night an infant, perfectly shaped, of a span long, was cast out of that tumour, but it was dead."[3]

It appeared to the writer advisable to enter thus fully into the statement of such unusual conditions, lest a prepossession, on our part, against the possibility of such occurrences should act unfavourably, either by closing our eyes against the evidence before us in extraordinary cases, or making us less careful in their examination, from a pre-conviction that pregnancy could not exist under such circumstances.

3. *Conception without the knowledge of the woman.*—That a married woman, or any female who has indulged in sexual intercourse, may become pregnant, without being aware of, or even suspecting her condition for several months after conception, is a fact too notorious to require further observation than the mere mention of it:[4] the question to be considered here is,—can a woman become pregnant in consequence of intercourse, of the occurrence of which she was not conscious, and so, find herself with child, without being aware of having incurred the risk? Improbable or even absurd as such a supposition may, at first sight, appear, the possibility of such an accident is established by too many facts testified by high authority, to permit incredulity on the subject. The belief, that consent and pleasurable sensation on the part of the woman, are conditions necessary to conception, is now universally known to be without foundation in nature, and of course no longer influences legal decisions; formerly, however, it was otherwise, so that in case of rape, if pregnancy followed, it was presumed to prove consent, and it was so laid down by Dalton;[5] but Lord Hale says

[1] Quoted from, 1. Archives de la Soc. d'Emulation; 2. Journal de Méd. et de Chirurgie for 1775.

[2] From Chopart, Malad. des Voies Urinaires, vol. i. p. 389, note.

[3] Anatomical Exercitations concerning the Generation of living Creatures, p. 495, Ent's translation.

[4] For instances, see pp. 30, 112, 113, 127.

[5] Dalton, c. 160. See also 2 Just. 190.

that this opinion of Dalton seems to be no law.[1] "That so absurd a notion as that conception evidenced consent, should in modern times, have obtained amongst any, whose education and intellect were superior to those of an old nurse, is indeed surprising; at this day, however, facts and theory concur to prove that the assentation of nature in this respect is no ways connected with violation of mind."[2] "It is a fact," says, Capuron, "which experience has more than once confirmed, that a woman may become with child while in a state of hysteria, under the influence of narcotics, during asphyxia, drunkenness, or *deep sleep*, and consequently without being conscious of it, or sharing the enjoyment of the man who dishonours her;" and in proof, he mentions having attended a young woman who was impregnated while totally unconscious, being buried in a deep sleep produced by punch given her by her paramour.[3] She became aware of her condition for the first time when she felt the sensation of motion in the fourth month. Foderé expresses a similar opinion, and quotes several instances in which the occurrence took place, one of which is particularly remarkable.[4] MM. Marc,[5] Raige Delorme,[6] and Devergie[7] speak of such a fact as established by experience. Dr. Gooch says, "it is not necessary that the woman should be sensible at the time of impregnation," to which observation the following case is subjoined: "A maid at an inn, who was always thought to be virtuous, and bore a good character, began to enlarge, in a way which excited suspicions of pregnancy; she solemnly declared that she never had connection with any man. At length she was delivered and was afterwards brought before a magistrate to swear to the father; but she repeated her former declaration. Not long afterwards, a postboy related the following circumstances: that one night he came late to this inn, put his horses into the stable, and went into the house; he found all gone to bed, except this girl, who was lying asleep on the hearth-rug, and, without waking her, he contrived to gratify his desires." This shows," he adds, "that impregnation may take place without the knowledge of the female."[8]

In reference to this question Beck remarks, "In females habituated to sexual connection, or where sleep is unnaturally produced, there is no doubt of its occurring; whereas in the opposite cases, the probability is greatly lessened;"[9] and in a note on this passage he quotes the following case: "a pregnant female in her last moments

[1] 1 H. H. 131. See also, MSS. Sum 334.
[2] Burn's Justice, tit. *Rape.*
[3] See Méd. Lég. relat. aux Accouchemens, pp. 57, 84.
[4] Médecine Légale, t. i. p. 497 et seq.
[5] Dict. de Med. tom xxi. pp. 358–9.
[6] Ibid, tom. x. p. 465–6.
[7] Médecine Légale, tom. i. p. 431. See also Smith's Forensic Medicine, p. 401.
[8] Compendium of Midwifery, pp. 81–2.
[9] Elem. Med. Jurisp. 5th edition, p. 152

solemnly declared that to her knowledge she never had connection, but that a person in the family, some time previously, had given her some wine to drink, after which she fell into a profound sleep. She was not, however, conscious of any thing having occurred during that state, but mentioned the circumstance as probably explaining her situation."[1] A case very much resembling that related by Dr. Gooch was communicated to the writer by Mr. Cusack, which occurred under his own observation. A servant woman, at an hotel in Nenagh, proved pregnant, and solemnly declared, that she was not conscious of having had intercourse with any man. Suspicion, however, fell upon an ostler in the establishment, who subsequently acknowledged, that he beleived he was the father of the child; that having found the woman in a deep sleep from fatigue, caused by long continued exertion and being kept out of bed two or three nights in succession, he had connection with her, and, as he believed, totally without her knowledge, as she did not evince the slightest consciousness of the act at the time, or recollection of its occurrence afterwards; the parties were married with mutual consent.

The writer once attended a patient who, even in her dying hour, protested in the most solemn manner, that she was not conscious of sexual intercourse; he is quite aware of how little reliance can, in general, be attached to such statements, and has already (p. 22) insisted strongly on that point; but, when we recollect that delivery has occurred during sleep, we cannot doubt but that coition, which is so much less likely to disturb, may be consummated during that state, with a female accustomed to sexual indulgence, without her being afterwards aware of it.

That such an event must be of very rare occurrence is certain, but we cannot altogether deny its possibility; and, therefore, we are furnished with an additional reason for refusing implicit assent to the statements of females, who will, in ordinary cases of illegitimate pregnancy, deny the possibility of their condition with the most unparalleled effrontery, and the most solemn and imposing protestations; whilst we should, on the other hand, recollect that impregnation may, possibly, have been effected without their knowledge; so that, how ever highly we may esteem their general credibility in other matters, in this they may either try to deceive us, or be themselves deceived; we must therefore form our opinion, not by what we hear, but by what we can see and feel.

The celebrated case quoted by Bruhier, Foderé,[2] and others,[3] from the Causes Célèbres, to show the possibility of conception during a state of complete asphyxia or apparent death, is so generally known as to render its relation here unnecessary.

[1] Mierius in Brendel, 99.

[2] Médecine Légale, tom. i. pp. 500–1.

[3] Louis, Lettre sur la certitude des Signes de la Mort, and C[illegible] Practical Medicine, vol. iii. p. 494.

4. *Imperfect intercourse. Presence or absence of the hymen, &c.* —Cases of the kind, already noticed pp. 46 and 114, and to others of which further references will presently be made, have occurred too frequently, to leave it doubtful, that a woman may conceive, with whom intercourse has been only partially accomplished or unsuccessfully attempted. It seems, therefore, almost unnecessary to remark that the presence of the hymen, however perfect its condition, cannot be assumed or depended on, as a conclusive proof against the previous occurrence of impregnation ; for, although it certainly ought to be considered as strong presumptive evidence in favour of virginity, so many cases have been witnessed, and put on record by authors worthy of credit, in which that membrane has been found co-existing, not alone with pregnancy, but even with labour, that the fact no longer remains a matter of doubt. Meckel[1] remarks, that "the hymen cannot be considered a certain physical sign of virginity, because, on the one hand, it has often been found entire, not only in women who had frequently indulged in sexual intercourse,[2] but even in some who had brought forth fœtuses advanced even so far as the seventh month,[3] of which he says he has the preparation in his museum. That the integrity of the hymen might be consistent with the expulsion of a small fœtus, the writer does not doubt ; but he cannot help considering its remaining entire, after the passage of a full sized child in the seventh month, as a very improbable occurrence ; and he finds that Devergie,[4] in referring to this case, states, that the fœtus was of five months, and enveloped in its membranes. The writer was once consulted by a young person whom he found to be pregnant, and whose hymen was as perfect as it had probably ever been : but the opening through it was such as to admit the finger to pass without difficulty, and the girl acknowledged that she had on more than one or two occasions, enjoyed the embraces of a very young gentleman on whose youth it appeared she had relied for immunity from the usual consequences. The existence of the hymen, at the time of labour, has been observed by Ambrose Paré, Willis, Ruysch, Nœgelé, Baudelocque,[5] Mauriceau,[6] and many others ; the cases related by the last two are particularly remarkable. Dr. Blundell met with four cases of impregnation in which the hymen remained unbroken ; the diameter of the vaginal orifice not exceeding that of the little finger : and he knew of three other cases in which the male organ was not suffered to enter the vagina at all ; yet impregnation took place

[1] Anatomie Descriptive, &c. vol. iii. p. 735.

[2] Osiander. Abhandlung über die Scheidenklappe, p. 24. "Milles causes étrangères au coit peuvent le detruire, et que la copulation n'en determine pas toujours la rupture." Velpeau, tom. i. p. 67. See also Metzger, by Ballard, pp. 251--2.

[3] Tolberg, De Varietate Hymenum, p. 14.

[4] Méd. Légale, tom. i. p. 340.

[5] Ar des Accouchemens, vol. i. ch. 3.

[6] Maladies des Femmes Grosses, tom. ii. obs. 489, p. 405, and obs. 583.

from the mere deposition of the semen on the vulva.[1] In the case related by Dr. Tucker, the aperture in the hymen was very little more than an eighth of an inch in diameter, and the membrane was sufficiently strong to resist the forcible impulse of the child's head, during several labour pains.[2] Velpeau[3] mentions having met with the hymen entire in the body of a woman of forty, who had long cohabited with her husband, but without having children. The writer once witnessed a similar case in an old lady of 80, who had been married and lived thirty years with her husband without having children; when visited by the writer she had been some years a widow, and examination of the parts became neecssary in consequence of an affection of the urethra; the hymen would not permit the passage of the point of the little finger without difficulty. Hildanus[4] relates a case in which the husband sued for a divorce, because his wife could not admit his embraces; but she suspected herself to be with child; on examination by several eminent surgeons, the vagina was found obstructed by the hymen, which was very strong, and perforated by several small openings. The membrane was divided and the husband satisfied: six months afterwards, the woman was delivered of a full grown child.

On the other hand, I believe it is a matter of universal agreement, that there are many causes besides sexual intercourse, capable of destroying this membrane; which there is also good reason for believing, may, in some cases, have been originally defective, from imperfect conformation of the part.[5] In a former chapter, p. 15, the imperforate hymen has been noticed, and its effect in inducing suspicion of pregnancy, by preventing the discharge of the catamenia; and it is scarcely necessary to observe here, that in such a case the mere discovery of the obstacle would be proof positive against the condition suspected.

Among the Jews, a discharge of blood, as the consequence of the laceration of the hymen *in primis nuptiis*, was considered so unequivocally the test of virginity, that it was made a subject of legislation, and the woman, to whom this did not happen was liable to be stoned to death.[6] Gardien mentions, that the Jewish custom prevails to a certain extent, at the present day, amongst the Beduoin Arabs; and Mahon, on the authority of Chappe, speaks of a similar custom as still existing in Siberia and in certain parts of Russia.[7]

[1] Principles of Obstetricy, pp. 65--6.

[2] See Merriman's Synopsis, 4th edit. p. 230. Several other cases are referred to in the same work, pp. 58. 228. See also Davis's Principles of Obstetric Medicine, p. 104. Gooch's Compendium of Midwifery, p. 81. Paris and Fonblanque, vol. i. p. 203. And Smellie, Collect. xxxi. case 26, p. 62.

[3] Traité d'Accouch. tom. i. p. 68.

[4] Centuria iii. obs. 60.

[5] Meckel, loc. cit.

[6] Deuteronomy, chap. xxii.

[7] Médecine Légale, tom. i. p. 123.

It has been remarked by Foderé, Mahon, and others, that the state of the hymen may vary much in the same individual, at different times, and under different circumstances; and the latter mentions a case where a man not finding it existing in his bride, took great offence, but afterwards, finding a totally different condition of the part recognised his error and was satisfied.[1] Marc has recorded a very remarkable case illustrative of this, and, as he says, showing, that when the hymen is of the semilunar form, it may disappear for a time and return again. "A young girl, not 13 years of age, formed an illicit intercourse with a man, and became severely affected with syphilis, for the cure of which, she was brought to the hospital of La Pitie; on examination by Dr. Serres and others, there was found extreme dilatation of the vagina, injury of the external genitals, and total absence of the hymen; she was cured, and then they were greatly astonished to find all the physical marks of virginity existing, especially a well marked semilunar hymen. MM. les Docteurs Fournier, Pescay and Marc were appointed by the Medical Society of Emulation to examine and report on the fact.[2]

Having, on a former occasion,[3] noticed, as an instance of pregnancy under very extraordinary circumstances, a remarkable case recorded by Nysten,[4] in which, impregnation was supposed to have taken place in connection with several conditions calculated to render such an occurrence highly improbable, I recur to it now, principally for the purpose of expressing a doubt, as to its having been, in reality a case of pregnancy; and secondly, to offer a suggestion as to what was, more probably, its real nature. In the case alluded to, 1. the supposed pregnancy was ovarian; 2. the girl was only thirteen years old; 3. she had never menstruated; 4. the hymen was perfect; 5. the vagina so contracted that it would scarcely admit the tip of the finger; 6. the organs of generation and the breasts like those of childhood. After her death which occurred at the Hotel-Dieu, there was found, in the situation of the left ovary, a tumour which contained hairs, the crowns of molar and canine teeth, with some both of the long and flat bones; and it is added, that pregnancy never was suspected. After many endeavours I have been unable to obtain access to the original paper, but from the above facts, as quoted by Gardien, I am disposed to consider the case not to have been one of pregnancy, and think that the fœtal structures discovered, were not the products of conception in the individual, but were in all probability coeval with her, in whose body they were found, and produced by the original inclusion of one germ within another; as happened in the cases examined by

[1] Loc. citat, p. 121. See the statement of Buffon, as quoted by Mahon, tom. i. pp. 127, 9.

[2] Dict. de Méd. Art. Violation, by Marc, vol. xxi. pp. 353--4.

[3] Cyclopædia of Pract. Med. vol. iii. p. 495.

[4] Journal de Médecine par MM. Corvisart et Leroux, brumaire, an 11, p. 144 et seq. Quoted also by Gardien, tom. i. p. 526, note.

Dupuytren[1], Dr. Young,[2] and Mr. Highmore[3], in which fœtuses were found in the bodies of boys.

Several instances have also occurred, in which women have been impregnated, although in a state rendering ordinary intercourse impossible; in consequence either of original malformation or accidental closure of the vagina, from the effects of bad labour, or other causes. Mr. Burns quotes a case from Portal[4] in which a girl who had only a very small aperture at the vulva for the evacuation of the urine, and whose menses came from the rectum, nevertheless became pregnant; before delivery, however, the orifice of the vagina appeared, and she bore the child in the usual way.

Chapman[5] relates the case of a woman who was so exceedingly malformed about the orifice of the vagina, that even up to the time of labour, which took place about the seventh month, she did not entertain a suspicion that she could be with child; there being in the situation of the external orifice nothing more than a small slit through the integuments, merely large enough to admit the point of the finger; delivery by the vagina being found impossible, and the child's head pressing towards the anus, an incision was made through the rectum into the vagina, and delivery effected per anum. In a case related by Peu,[6] the orifice of the vagina, in consequence of adhesions resulting from a former bad labour, was contracted to such a degree as to leave room only for the passage of a very fine probe. In this state the woman married a second time: but her husband, after many fruitless attempts, was unable to effect intercourse; notwithstanding which, however, she became pregnant, and her delivery was accomplished by dividing the adherent surfaces. Dr. Hamilton, in his recently published work, mentions having met with four instances where women had become pregnant, in whom the external orifice was so small that it could barely admit the introduction of an ordinary quill.[7]

5. *Secondary ovum, supposed abortion, blighted and retained ovum.*—In this section it is intended to consider, first, a condition of the pregnant woman which presents considerable embarrassment in the investigation of her real state, consisting in the retention of an ovum in the uterus, after the expulsion of another, in cases of twin conception; a condition which is at once very liable to escape detection, especially in a person of full habit, and which may either

[1] See Dublin Journal of Medical Science, vol. iv. p. 294, where the particulars of the case are given from the "Recueil des Mém. de la Fac. de Méd. de Paris."

[2] Med. Chir. Trans. vol. i. p. 234.

[3] "Case of a fœtus found in the abdomen of a young man," by Nathaniel Highmore, M. R. C. S. L. 4to. Longman & Co., 1815. The fœtus is deposited in the museum of the College of Surgeons in London, and a cast of it is in the writer's possession.

[4] Précis de Chirurgie, tom. ii. p. 745.

[5] Treatise on Midwifery, case xxxiv. p. 206.

[6] Pratique des Accouchemens, p. 245.

[7] Practical Observations, &c., part ii. p. 121.

lead to severe, although perhaps undeserved censure, against the medical attendant, or to still more unmerited and injurious aspersions on the fair fame of the patient, should the accident occur under peculiar circumstances. Secondly, it will be desirable to notice those cases, in which abortion is supposed to have occurred, when that accident has really not happened; and thirdly, those instances, in which the ovum is blighted, but is afterwards retained in utero for many weeks or months; such anomalous conditions being not unfrequently combined under a variety of forms.

The occurrence which I propose to describe under the designation of secondary ovum, happens but rarely, but for that very reason, in addition to the others above noticed, it deserves our especial attention to its accompanying circumstances, which are usually these:—a woman proceeds regularly and healthily through the first three or four months of her pregnancy, and then, being seized with symptoms of abortion, she expels an ovum, is told that she has miscarried, and of course looks upon it as certain, that she is no longer pregnant. She soon resumes her usual avocations, but is, at first, surprised that she is still as large as before the accident, and by-and-by she feels some motion within her, and suspects it to be quickening; but, as she had already miscarried, she thinks something unnatural is going forward, seeks for advice, and is found to be still pregnant; and, at the time she originally calculated on for her delivery, she gives birth to a full grown healthy child. The possibility of such an occurrence should make us, invariably, adopt the precaution of carefully examining the state of the uterus after the expulsion from its cavity of any organised, or other substance, during the state of gestation; and if we find the organ unexpectedly large, we should act with great caution, both as to the opinion we pronounce on the state of the patient and in the treatment we adopt, which should be of such a kind as would not be likely to interfere with the continued vitality of an ovum. The various forms, under which such cases may present themselves, will be, perhaps, best illustrated by a few instances of the occurrence.

A lady of the writer's acquaintance, when in the fourth month of pregnancy, went on an excursion to a favourite place of resort for parties of pleasure near this city, and after walking a good deal, became aware that she had a sanguineous discharge, with other symptoms of miscarriage, in consequence of which she was removed home: on the arrival of her medical attendant, an ovum of about four months was found in her dress: in a few days she was well again, and no suspicion was entertained but that she had parted with the contents of the uterus; she remarked, however, that her size had not diminished, but was, on the contrary, increasing; soon afterwards, to her infinite surprise, as well as that of all parties concerned (for her attendant discountenanced all idea of the possibility of her being still pregnant) she distinctly perceived fœtal motion, and at the expiration of the time at which she had originally expected her confinement, she gave birth to a healthy full-grown

child. In a case just communicated to the writer by one of the most experienced practitioners in this city, he mentions, that a lady being then in the third month of pregnancy, had sanguineous discharges from the latter end of January to the early part of March, when for two or three days in succession organised fleshy substances, evidently the product of conception, were expelled. After this the discharges ceased, and the lady went to the country, with the impression that she had miscarried; but on the 14th May she came to Dublin again, in consequence of feeling, as she thought, the motions of a child in utero, in which idea she was perfectly correct, as my informant recognised the pulsations of the fœtal heart by the stethoscope; and on the 1st August she gave birth to a daughter, who is now alive and well.

Dr. Ingleby mentions[1] a case in which, after a long continued hemorrhage, a diseased placenta (of the grape kind) was cast off, but without any apparent fœtus; the os uteri closed, and to the surprise of all parties, the patient was delivered, a few weeks afterwards, of a mature child and secundines. Dr. Ramsbotham, after describing this state of the female, with his usual clearness and accuracy, relates a case of the kind which occurred in his own practice, and another which was communicated to him. In the first, the lady miscarried on the 5th of November, of an ovum in the third month, with hemorrhage before its expulsion, but none afterward: she continued to increase in size, and felt satisfied that she was still pregnant: on the 4th May she was delivered of a full-grown living daughter. In the other instance, abortion happened about the time of quickening; between eighteen and twenty weeks afterwards, the patient was taken in labour, and sent for her attendant, who said it was impossible, as he had attended her only five months before, when she miscarried; and that if she was in labour it could not be at the full time. But he found the fact as stated to him; she was presently delivered of a full-grown male child, and did well.

Mr. Chapman[2] has recorded a case, in which this circumstance occurred so late in pregnancy as the close of the seventh month. On the 9th of October he was called to see a lady who was supposed to be about seven months pregnant, not having menstruated since the beginning of March. She was now seized with labour pains, and before Mr. Chapman's arrival something had been expelled, which on examination he found to be a perfectly healthy placenta, of the size it usually is between five and six months, to which were attached the membranes, quite perfect, but of a dirty yellow colour, flattened, and closely embracing a small fœtus, not longer than it usually is between three and four months, without any liquor amnii, although it did not appear that any could have escaped. The uterine action subsided, and the hemorrhage ceased,

[1] Facts and Cases in Obstetric Medicine, p. 242.
[2] Med. Chir. Trans. vol. ix. p. 194.

but the patient continued as large as before, felt the fœtal motions as strongly as ever, and went on well until the 10th December, when she gave birth to a fine, full-grown girl, and recovered well. A circumstance mentioned in the relation of the above case, which the writer has frequently had occasion to observe, is deserving of notice; namely, the greater degree of development and maturity of the placenta, than of the fœtus: another instance of which will be noticed presently; it appears that in cases of this kind, the placenta continues partially to maintain its connection with the maternal system, and to grow after the nutrition of the fœtus has been arrested.[1]

There is a case related by Harvey, which is usually considered, and constantly quoted, as an example of superfœtation, which Harvey himself expressly calls it; but to the writer, it appears to admit of another explanation, and that it may, with equal propriety and probability of truth, be considered an instance of secondary ovum, like some of those just related. "A certain servant-maid," he says, "being gotten with child by her master, to hide her knavery came to London, in *September*, where she lay in by stealth: and being recovered again, returned home; but in *December* following, a new birth (for she had a *superfœtation*) did proclaime the crime which she had cunningly concealed before."[2] Now it is to be observed, that there is here, no mention made of the degree of maturity of either of the children; and, without knowing this, it appears extremely probable, that the case was similar to Mr. Chapman's above noticed, in which one child was expelled in October, and the other in December, and I should say precisely the same of the case quoted by Harvey, immediately afterwards, from Aristotle, who subjoins an observation in which such an occurrence is accurately described. "It happened," says Aristotle, "to another woman, that having brought forth a child, in the seventh month, she at the end of her full time, brought forth two more; the former child was dead, but the last two lived. Some women, also, who have miscarried, having conceived of twins, have expelled one of them prematurely, but brought forth the other at the full time."[3]

With regard to the subject of *supposed abortion*, the instances are by no means unfrequent in which we are consulted by women, who, having had reason to think themselves two or three months pregnant, have then had symptoms of miscarriage, of such a kind as to induce a very positive belief that the accident had absolutely occurred, when it had not; the substances expelled not having been examined by any competent judge, who might afford us precise information as to whether the ovum had been really thrown off or not. If this should occur to a woman in whom the early symptoms of pregnancy are, habitually, very feebly manifested, or ob

[1] See a remarkable case in Ruysch, Advers. Anat. vol. i. obs. xiv.
[2] On the Generation of Animals, Ent's Trans. p. 479. Opera, 4to edit. p. 547.
[3] Hist. Anim. lib. vii. cap. 4, quoted by Harvey ut supra.

scure; or if these symptoms, being of the usual kind, decline after the accident, as they sometimes do for a time, especially when there has been a considerable hemorrhage, it may be extremely difficult at those early periods to determine whether pregnancy still continues; and still more so, whether the vitality of the ovum is preserved.

If the irritability of the stomach has ceased; if the breasts have become flaccid, and have lost the tingling sensibility previously experienced; if certain peculiar sensations are no longer felt; if the size of the abdomen has diminished; and if there has been, since the time the accident was supposed to have taken place, a vaginal discharge, having the characters of an uterine hemorrhage, or of ordinary menstruation, it is almost beyond all doubt that gestation is not proceeding naturally: but it is only by a careful examination of the uterus, both externally and internally, that we can hope to ascertain satisfactorily, whether that organ still retains the product of conception: should we come to the conclusion that it does, or remain in doubt on the subject, we should act on the presumption that the ovum may still be matured, and adopt such measures as are best calculated to ensure such a consummation.

Many such cases have come under the writer's observation, into the details of which he deems it unnecessary to enter; he will therefore only allude to one, at present under his care, in which there appeared very little probability of gestation proceeding. A lady, when in the third month of pregnancy, after driving a great deal through town during two days, was seized with profuse uterine hemorrhage, accompanied by severe rigors and pain in the back, after which, some ounces of a serous fluid, resembling the liquor amnii, were discharged: this was followed by diminution in the size of the abdomen and breasts, and a partial subsidence of the irritability of stomach, from which, the lady told me, she never suffered much till after the time of quickening, up to which period, she had never experienced, in more than a trifling degree, the usual symptoms of pregnancy with any of her children; on examination per vaginam, I found the uterus, apparently, still retaining the characters of gravidity, the general symptoms of which, however, remained in complete abeyance for nearly a month, during which she was kept in a state of absolute rest, and other suitable measures were adopted: at the end of that time, the symptoms of pregnancy had evidently returned, and became more distinct; the abdomen was increased in size, soon afterwards quickening occurred, and she is now near the end of the eighth month.

Another condition is that in which pregnancy proceeds regularly for a few months, and then has its progress arrested by the death of the ovum, with or without symptoms of miscarriage; sanguineous discharge, however, being generally present. The blighted ovum may, under such circumstances, be retained for an indefinite time, and during its sojourn in utero, a train of anomalous symptoms continues to harass the patient, and render her doubtful and

anxious as to her situation. Some observations on this subject have already been made at pp. 65-6, and a striking case of the kind detailed; to which I shall now subjoin another, the circumstances of which were more peculiar, and in many points of view, not less interesting than important. A lady who menstruated in the last week of July began about the middle of August to exhibit unequivocal symptoms of pregnancy, which proceeded regularly till the middle of October, when indications of threatened abortion appeared, with pain, and the repeated expulsion of large coagula and substances of various appearances. After this, the previously existing symptoms of pregnancy entirely disappeared, and it was supposed that miscarriage had occurred and that the ovum had escaped, unnoticed, amidst the masses of coagula. The lady resumed her ordinary habits and went into society as usual, without experiencing any uneasiness, or unhealthy symptom, except irregular uterine discharges, which were supposed to be menstrual: so matters proceeded until the 7th January, when, after a long drive, she was seized with periodical pains accompanied by smart uterine hemorrhage, in consequence of which I was sent for. I found the os uteri open and an ovum partly protruded through it, this I succeeded in disengaging and bringing away; on examination, it presented the general appearances, as to size, form, and growth of the fœtus, of an ovum of less than two months, but the placenta was as large and as much formed as it should be at three months, and was moreover quite unhealthy, being throughout affected with what is usually called the tubercular state of that organ; the fœtus seemed perfectly healthy, but very small; and the umbilical cord was only about half an inch in length, and much hypertrophied, being suddenly enlarged on leaving the placenta, to three or four times its natural diameter, and again, as suddenly contracted almost to a thread, where it joined the abdomen of the fœtus.

Dr. Inglegby tells us of a woman who considered herself to be in the third month of pregnancy; soon afterwards she lost every symptom of that condition, (amenorrhœa excepted,) but still felt convinced that she was pregnant; at the ninth month, labour came on, and a fœtus of apparently three months was expelled; it was quite healthy, but the placenta was diseased.

Such cases as the above possess an interest and a demand on our attention of a very important kind, as illustrative of the necessity for carefully examining into the state of the fœtal appendages, before we venture to pronounce an opinion on the time that has elapsed since conception, merely from the size or general appearance of an ovum shown to us; for here we have, in one instance, an ovum, the size which, and that of the contained fœtus, would indicate a period of *less than two months'* pregnancy, whereas *five months* had really elapsed from the time of conception, for the parties had not cohabited since the time of the threatened abortion; and, in the other case, an ovum of *three months'* growth was expelled, *nine months* after conception. Now, in either case, had the husband happened to die, or to have gone from home, shortly after the

time of conception, the female might have sustained, though most unjustly, a severe injury to her reputation: this subject will be again noticed, when we come to consider the period of human gestation.

Another anomaly of very rare occurrence is that, in which, during the sojourn of the blighted ovum in utero, a new conception takes place, and both products are retained, and expelled together. See remarks already made on this subject, pp. 46-7.

It appears in conclusion, only necessary to allude to another kind of relation which a blighted ovum, existing in utero at the same time with a healthy one, may observe with regard to the latter; along with which it may remain during the whole term of gestation, and be expelled with it at the time of labour, or immediately afterwards, having either formed a distinct attachment to the uterus by a completely separate placenta of its own, or being connected with a placenta closely united with that of the healthy child. An instance of the former condition is preserved in the writer's museum; in which case, the blighted ovum was discharged about half an hour after the birth of a fine full-grown child; and Cruveilhier[1] has given a representation of the second variety. In such cases, it will generally be found, on enquiry, that there had been, at some period of gestation, most frequently about the third or fourth month, symptoms of miscarriage, but no ovum thrown off, which, from the intimate connection existing between the two, could not well happen without the dislodgment of both; had they been separate, the circumstances would, probably, have been those described in the first part of this section, p. 138.

CHAPTER XII.

INVESTIGATION AFTER DEATH—EXAMINATION OF THE UTERUS AND ITS APPENDAGES—THE OVARIES, CORPORA LUTEA, FALLOPIAN TUBES.

It is unnecessary to repeat here what has been already particularly set forth, with regard to the state of enlargement in which the uterus must be, when containing the product of conception. In relation to our present subject, the first and most obvious fact to be noticed is, that when an examination is made after death, and the uterus found of its ordinary diminutive size, it is proof positive against the present existence of natural pregnancy. If, on the other hand, we find the organ enlarged, and its condition, apparently, corresponding to the period of pregnancy supposed to exist, no-

[1] Anat. Pathol. liv. vi. pl. vi.; see also Ingleby's Facts and Cases, &c. p. 241; Lond. Med. and Phys. Journ. vol. xvi. p. 53; Glasgow Medical Journal for Oct. 1833, p. 338; Ramsbotham's Pract. Obs. part. ii. p. 379.

thing but a careful examination of its contents, or other cause of enlargement, can determine the question at issue. I will here only observe, that nothing less than the distinct and unequivocal detection of the ovum, or some of its component structures, ought to satisfy our minds, or justify us in giving an opinion in the affirmative.[1]

Another condition of the uterus which may present itself, is that in which it is found enlarged but empty, exhibiting, however, several of the changes which accompany gestation: these, however, upon examination, will only afford evidence sufficient to convince us, that the organ has recently contained something which had been attached to its internal surface by a vascular connection; the substance expelled may, or may not, have been the product of conception; and the most careful examination of the appearances remaining, or of the structural changes effected, may not enable us to pronounce safely on the precise nature of the cause which had produced them. Thus, for instance, in a case where hydatids have been expelled, we could not determine, by examination of the uterus alone, whether the conditions there observable were the result of true pregnancy and the expulsion of a fœtus or ovum, or whether they might not have been produced by some other cause unconnected with conception: we may not, in fact, be able to tell, without further investigation, whether the woman have recently conceived or not, a question which it may be, occasionally, of paramount importance to be able to answer: we must, therefore, turn our attention in another direction, and seek for proof of impregnation in the appendages, particularly in that part of them which is more especially the seat of conception.

This leads us at once to investigate the value of that peculiar change in the ovary, by which, after the vivification of the germ, there is produced a new structure, to which has been applied the name of *corpus glandulosum*, or more generally, *corpus luteum*, the presence of which is, by some, considered incontrovertible evidence of impregnation. Others, however, with equal confidence, discredit the value of its presence; asserting, that its existence may be owing to causes altogether accidental, and independent of sexual intercourse, and that, consequently, it cannot be taken as certain evidence of conception. It becomes, therefore, a matter of vital moment to examine the truth of such assertions, and to determine, if we can, how far they coincide with, or depart from, absolute matter of fact, which alone can be the measure of their correctness, and consequently of their value. In order to do this, the first thing which appears essentially necessary is, that we shou'd have a clear idea of what a true corpus luteum is, and of what is not a corpus luteum.

If this enquiry should appear to any one superfluous, it is only necessary to turn to the generality of books in which it is men-

[1] See Observations on the examination of the early ovum, pp. 89–90.

tioned, and then compare the descriptions and delineations to be found there with the object as it exists in nature, and we must be convinced how faint is the resemblance between the portrait and the original. I am inclined to think, that the naming of this substance has given rise to much of the error which exists and is propagated on the subject, the colour being assumed as the only characteristic necessary to constitute the corpus luteum. Whenever, therefore, small spots, or even points of a yellow hue are met with in the ovaries, they are supsosed to be true corpora lutea. I recollect distinctly the first time my attention was drawn to the subject was at a demonstration of the structure of the ovaries, when two spots, each not larger than a grain of mustard-seed, and of a yellow colour, were exhibited as specimens of corpora lutea, and as proving that the woman had borne two children.

A trial took place some years ago in Edinburgh, which, while it evinced the necessity for a correct knowledge of this subject, which might occasionally arise, even under circumstances not apparently connected with its existence, proved, but too plainly, how little was known about it. A prosecution was instituted against four medical students, for exhuming the body of a lady in Glasgow. The body was so disfigured that it could not be identified: the ovaries were, however, examined, and it was reported, that there was, in one of them, a perfect corpus luteum, which would be sufficient to prove, that the remains were not those of the lady in question, who was a virgin, and advanced in life. On the trial, there was a complete contradiction between the medical witnesses, one half of whom affirmed the appearance in the ovary to be a true corpus luteum, while the others maintained that it was not; so that no satisfactory inference could be drawn from the fact. The body was afterwards identified by a dentist, who produced a cast which he had taken of the gums; but I should add, that I have lately learned, that the evidence of Dr. Hamilton, the present professor of midwifery, had the principal influence in deciding the jury in their verdict.

In order to understand this matter satisfactorily, it will be necessary to consider, briefly, the situation in which the ovum is placed in the ovary, its coverings, and some other circumstances connected with its expulsion thence.

The ovum is contained within the Graafian vesicle, which consists of two distinct membranous envelopes, the outer of which is the stronger, and gives transmission to several bloodvessels passing to the inner one, which is softer and more vascular. Besides these two coats of the Graafian vesicle, there are two others through which the ovum has to pass when leaving the ovary, namely, the proper[1] coat of the ovary itself, and its peritoneal covering.

It is in order to explain the mode by which the expulsion of the ovum is accomplished, that it becomes desirable to consider the

[1] Called by some tela formativa or stroma, and by others, tunica albuginea.

mode of formation of the corpus luteum, which is a principal agent in effecting that expulsion.

On the occurrence of conception, there immediately takes place a great determination of blood towards the ovaries, as well as to the whole of the uterine system, and the coats of the Graafian vesicle, from which the impregnated ovum is to be discharged, become pervaded with a close network of vessels. The vesicle itself soon increases considerably in size, and is thus, at once, pressed *outwards* towards the surface, and against the peritoneal coat of the ovary; the close structure of the body of the ovary preventing the enlargement being accommodated *inwards;* at the same time, the inner coat of the vesicle becomes intensely vascular, and on its external surface, a soft, gelatinous substance, of a yellowish red colour, consisting apparently, in part of blood, and in part of lymph, is poured out (for the formation of the corpus luteum) between the two coats of the vesicle, in considerable quantity, all around, except at the point where it is pressed towards the external surface of the ovary, and against the peritoneum; for at this point the coats of the vesicle are thinner, and, apparently, without vessels, exhibiting a semi-transparent spot[1] analogous to the white line which is observed on the external surface of the capsules containing the yolk in the ovarium of the bird, and along which the capsule opens when the vitellus is discharged into the infundibulum. The consequence of the formation of this new substance and its situation, must be, considerable compression from within outwards of the inner coat of the vesicle, within which is the ovum and the fluid which always surrounds it, which fluid is thus pressed forcibly against the point where the thinned and unvascular portion of the vesicle is in contact with the peritoneum, which is thereby caused to project a little from the surface, so as to form a small[2] nipple; absorption at the same time proceeds, and thus, by the conjoined agencies of the vis à tergo arising from the pressure caused by the formation of the corpus luteum, acting as it must of necessity do, towards the weak point of the vesicle and its peritoneal covering, and the natural tendency of the surrounding parts of the firm structure of the ovary, to close in, and restore themselves to their former condition, together with the effect of absorption, an opening is effected through the four coats surrounding the ovum, and its expulsion from the ovary into the tube accomplished. Thus, the vesicle, after impregnation, may really be said to become, with regard to the contained germ, a sort of little temporary uterus, lined with a serous membrane, covered externally by another, and having interposed between them the fleshy or glandular structure of

[1] "Thecæ ea pars, quæ post hac rumpitur jam aliquod tempus ante rupturam tenuior videtur," &c. Baer, p. 15. "Macula illa, in quacumque vesicula diversam formam gerens, oriri inde videtur, quod stratum internum opacum, subito in hac regione tenue fiat." Ibid. 16.

[2] "Cum aliquali prominentiâ. quam, præ similitudine, non inepte papillam nominaverimus." De Graaf, 246.

the corpus luteum; through which bloodvessels ramify, and exhale, through the lining membrane, a serous fluid for the support of the early ovum, which, as yet, lives by imbibition. From this temporary uterus, it is expelled in consequence of the increasing distension, by the pressure of the surrounding structure and corpus luteum; its envelopes bursting, and letting it pass through, to be received by the Fallopian tube, and transmitted to the cavity of the true uterus; there to be, at first, again supported through the medium of an organised lymphy product formed around it, and between it and the uterus, and afterwards, by other means, matured; until it is again expelled thence, by another process consisting also of pressure from the surrounding parietes, and an increased distension of the membranous envelopes, which at length giving way, the child is protruded into life.

It will appear, very obviously, from the above description, that I believe the corpus luteum to be surrounded externally, by the outer membrane of the Graafian vesicle,[1] while its cavity is lined by the inner membrane of this vesicle; the corpus luteum being in fact enclosed between these two membranes, and its substance pervaded by the small vessels passing from the outer to the inner. Of this, I think I have reason to be satisfied, and I would not have deemed it necessary to insist on it, but that a different account is given on the high authority of Baer,[2] who thinks that the corpus luteum is not a new body, but merely the inner coat of the Graafian vesicle in a state of greater development, which appears to be the opinion of Valentin also. Now the fact is, that it lies around, and outside of the inner membrane of the vesicle, which is to be seen distinctly forming its central cavity, at earlier periods, and, by the collapse or approximation of its opposite surfaces, afterwards gives rise to the radiated white line, which remains an essential distinctive character of the true corpus luteum, at every subsequent period at which this body is still visible.

This perfectly accords with the account given by De Graaf, whose description of this, and many other points connected with the anatomy and physiology of the ovary, has never been exceeded in accuracy: his words are: "Posteaquam testiculorum ova naturalem magnitudinem acquisiverunt, variis tunicis, sive folliculis investiuntur; inter quos, immediate post maris congressum, glandulosa quædam materia excrescit, ex quâ, globulorum modo descriptorum substantia componitur. In quem finem id a naturâ ordinatum sit, inferius explicare conabimur,"[3] which he does in the following passage: "Judicamus itaque, ova illa e testibus prodire, partim virtute testium, partim etiam ovi ipsius peculiari dispositione. Virtute testium, quatenus inter eorum membranas ovum obvelantes,

[1] Hence, as Rœderer remarks, "ab ovario, cum quo cellulosæ ope cohæret, separari sine læsione potest." "Propriâ membrana vestitur." p. 45

[2] 'Minime corpus novum est, sed stratum internum thecæ magis evolutum;" p. 20.

[3] De Organis Mulierum, &c. pp. 185–6.

materia quasi glandulosa excrescit; brevi namque post coitum, ovorum tunicas (quæ antea diaphanæ erant) opacas devenire conspicimus, multisque sanguineis vasis adornari; et postero die post opacitatem illam conspectam, inter dictas ejus tunicas glandulosam quandam materiam totum ovum involventem, globulique figuram representantem intueberis, quæ sensim accrescens ovum undecumque comprimendo, illud tandem per foramen in ejus medio conspicuum expellit; quod in cuniculis terito post coitum die, in ovibus, vaccis, aliisque majoribus animalibus quæ diutius uterum gerunt, tardius evenit."[1]

In addition to the mechanical agency which appears thus to be performed by the corpus luteum, it is supposed by some, and apparently with reason, to contribute also to the evolution and nutrition of the ovum, before it is separated from the ovary.

M. Plaage asserted, as the result of his observations, that the ovum is attached by a pedicle to the corpus luteum, which he regards as analogous to the placenta, after the ovum has established its connection with the uterus.

Now it appears perfectly reasonable, and indeed unavoidable to believe, that immediately on its vivification in the ovary, the ovum begins to draw, from the surrounding parts, a supply for its support and development, though this is not accomplished by means of a pedicle, of which I believe there is no trace, the ovum being free and floating within the cavity of the vesicle; but, it is perfectly consistent with what we know of the mode in which its early development is carried on in the uterus, to believe that the corpus luteum may perform, in the ovary, a function analogous to that afterwards discharged by the uterine decidua, on the arrival of the ovum in the cavity of the uterus, and subsequently, by the placenta; namely, by acting as an intermediate agent, by means of which, the materials of support and development are separated from the maternal blood, to be then imbibed by the outer surface of the ovum, in its earlier periods of growth, and in its more matured state, by the capillary terminations of the umbilical vein.

The combination of functions here ascribed to the corpus luteum is distinctly referred to by Malpighi in his account of that structure, "cujus ope," says he, "ovulum separatur, fovetur, et stato tempore ejicitur."[2]

If we examine the ovaries of a pregnant woman, especially if her conception has been recent, we observe, that the one which has supplied the germ differs, in several remarkable particulars, from its fellow of the opposite side: it strikes the eye at once as being larger, rounder, and more vascular; to the touch it feels fuller and softer: we perceive further, that this increase of size of the one is not so much the result of an increased development of the whole substance, or body of the organ, as of the addition to it, at one part,

[1] De Organis Mulierum, &c. pp. 245–6.
[2] Vide Morgagni, Adversar. iv. Animad. xxvii. p. 51.

of a tumour projecting, more or less, from its natural outline, as we find in the eye, where the circumference of the cornea projects from the outline of the globe, the segment of a smaller circle being superimposed on that of a greater.

The relative sizes of the ovaries in a woman who died in the sixth month of gestation, and had the corpus luteum in the right ovary, were, as given by Rœderer,[1]

Right ovary.		*Left ovary.*	
Length . . .	1 inch 7 lines	Length . .	1 inch 7 lines
Breadth . .	11 "	Breadth . .	10 "
Thickness . .	6 "	Thickness .	3 "

When we examine the protuberant part of the impregnated ovary, we find, that the increased vascularity is principally confined to its limits, where we perceive creeping on, or near the surface, a few small, thread-like, and convoluted vessels, and we generally find the colour of this part quite different from that of the rest of the organ; appearing as a deep, or dull brownish yellow, seen through a slightly reddish medium, and somewhere on the surface of the prominent part, we observe a distinct cicatrix, or appearance as of a rent imperfectly united;[2] to a small extent around which the peritoneal coat appears as if abraded, or removed by slight superficial ulceration; and here it is that the twining vessels, just mentioned, are most distinctly observable.

This is the point through which the ovulum escaped from the ovary, but it is almost invariably found closed up, and impervious, except it happens to be examined within a few days after the passage of the germ; as in the case examined by Sir E. Home and Mr. Clift, where the woman died eight days after impregnation was supposed to have taken place, "the right ovarium had a small torn orifice upon the most prominent part of its external surface. We slit it open in a longitudinal direction, in a line close to the edge of this orifice; the orifice was found to lead to a cavity filled up with coagulated blood, and surrounded by a yellowish organised substance."[3] But hitherto my experience has been the same as that of W. Hunter, whose words I may use, for, "in the cases which I have seen, no bristles would pass; it appeared to be an obliterated duct, or passage grown together."[4]

The external changes by which we recognise the existence of the corpus luteum in the human ovary, are most obvious in the earlier periods of pregnancy, while there is, as yet, the central cavity, and a greater degree of vascularity and vital action present; these afterwards subside, the cavity begins to close in, and the corpus luteum losing somewhat of its size, the increased bulk of the ovary

[1] Icones uteri humani gravidi, p. 45, et Tab. Dimens, Ovar. No. 38.

[2] "Cavam cicatricem referens, qualis ab ulcusculo male curato remanere solet." Noortwk.

[3] Philos. Trans. 1817, p. 254.

[4] Anatomy of the Gravid Uterus, p. 74.

is proportionally reduced also. In some of the lower animals the projection of the corpus luteum beyond the surface of the ovary is very remarkable; in cows[1] it is constantly found projecting like a morbid tumour, from the side, or end of the ovary; the same may be said of the sheep, and of animals which, naturally, have the Graafian vesicles very prominent, as the hedgehog or common sow, in which they absolutely project from the surface: in the latter animal the ovaries, after conception, appear literally like bunches of round berries, from the great prominence of the numerous corpora lutea.

Having satisfied ourselves of the presence of the external characters, we proceed to examine the internal structure; in order to do which, we should make a section of the ovary, carrying the knife through the centre of the prominent part, so as to divide the ovary into two longitudinal sections, by which we expose the corpus luteum, presenting the following characteristic appearances.

In *form* and *size*, it is almost always more or less oval, fabiform, with its longer axis varying from four to five eighths of an inch, and the shorter from three[2] to four eighths; its thickness is generally less than its breadth. Thus, it occupies from a fourth, to one half, of the whole area of the ovary, according to the period of gestation at which it is examined, the size being generally in the inverse proportion of the time elapsed since conception; as will be seen in the subjoined measurements, taken from specimens in the writer's collection, and from delineations by others. The corpus luteum, described by Dr. John Clarke[3] about the end of the *second month*, and which, he says, occupied nearly one half of the substance of the ovarium, measured in length 9½ lines, in breadth 8 lines, central cavity about 3 lines by 2, and the average thickness of the glandular structure all around the cavity is from 3 to 3½ lines. In a case of ovarium gestation, where death was supposed to have occurred between nine and ten weeks after conception,[4] the corpus luteum was found quite isolated in the ovary, with an opening into its substance; it measured 7 lines by 6.

The corpus luteum which I took from the body of a woman who died about the end of the *third month* of pregnancy, measures in the longer axis 7½ lines, in the shorter 6½ lines, in thickness 6½ lines; and measuring along the shorter axis the glandular structure is, at the part deepest in the ovary, 2½ lines thick, and at the outer part 1 line: the central cavity measures 3 lines in diameter.

In a specimen taken from the body of a woman who died about the middle of the fourth month of pregnancy, in consequence of a beating inflicted by her husband, the corpus luteum measures 9 lines by 7, and its central cavity 4½ lines by 2½.

[1] This is very well shown in De Graaf, pl. 14.

[2] "Pene hemisphericum, avellanæ mole." *Haller.*

[3] Trans. Soc. for Improv. Med. Chir. Knowledge, vol. i. p. 215, and plate 10.

[4] See Dublin Medical Journal, vol. ii. p. 191.

A corpus luteum of the sixth month in my collection, measures in longer axis 6 lines, in shorter 5, and in thickness 3, which are exactly the dimensions assigned by Rœderer to the corpus luteum of the same period, in the ovary No. 38 of his table, already described: in mine, the central cavity still existed and measures two lines by one.

At the ninth month, the measurements of the corpus luteum are generally, in the longer axis, about 5 or 6 lines, and in the shorter, 4 or 5: one specimen in my possession measures 6 lines by 5: another, 5½ by 5; and another, attached to a uterus in a state of violent inflammation, measures 7½ by 6. Rœderer states the dimensions of the one figured in his plate vii. fig. vii. to be 4 lines by 3, and 2 in thickness; and that in fig. viii. to be 7 lines by 4; and another, described by the same author, at eight days after delivery measured 4½ lines by 4, and 2 in thickness: one by W. Hunter[1] measures 6 lines by 5, the woman having died immediately after labour.

It is obvious from the above statements, that there is considerable difference in the size of this structure, at the same period of gestation, in different instances; this depends on the size of the Graafian vesicle around which it may have formed, the rapid or retarded closure of the central cavity, and the degree of vascular activity existing. Thus, in a specimen at the fifth month delineated by W. Hunter,[2] the corpus luteum measures 8½ lines by 7, and the central cavity 4½ lines by 1½; and in another above mentioned, where violent inflammation was present, the dimensions were unusually great after delivery at the full time. But the general rule remains unaffected, viz. that the corpus luteum is largest at early periods of pregnancy, and afterwards gradually diminishes in size; slowly during gestation, but more quickly after delivery.

Its structure is obviously and strikingly glandular, having a lobulated appearance, with slight convolutions, resembling not a little a section of the human kidney;[3] or, as some one has said, it is like a miniature of the particular section of the brain called by anatomists *centrum ovale*. William Hunter describes it as "tender and friable, like glandular flesh."[4] Rœderer compares its structure to that of the supra-renal capsules.

It is very vascular, small vessels being very frequently visible without any preparation; but if fine, coloured injections have been previously thrown into one of the branches of the spermatic arteries going to the ovary, the vessels of the corpus luteum will be filled with the colouring matter, and are to be seen, very distinctly, running from its circumference towards its centre. The injection

[1] Plate xv. fig. v.

[2] Plate xxix. fig. 3.

[3] "Glandularum conglomeratarum adinstar." De Graaf. p. 177.

[4] Anatomy of the Gravid Uterus p. 14. "Substantia e rubella flava est molliuscula, glandularis quasi, velut incipiens scirrhus." Rœderer, Icones, &c. p. 45.

will also pass, readily and freely, into the little serpentine vessels on the surface of the ovary, over the corpus luteum and around the rent in the external covering; and not unfrequently some of the injection is found extravasated into the central cavity, especially at early periods after conception.

Its colour is, as its name implies, a dull yellow, very similar to that of the buffy coat of the blood; exhibiting generally, when recently exposed, a slightly reddish tinge, "*ex flavo rubens.*"[1] This description however applies only to the human subject, as the colour varies in different animals; in sheep it has a slightly pinkish shade; in sows reddish, and in cows, a bright orange yellow.

Its centre exhibits either a cavity, or a radiated or branching white line, according to the period at which the examination is made: if within the first three or four months after conception, we shall, I believe, always find the cavity still existing, and of such a size as to be capable of containing a grain of wheat[2] at least, and very often of much greater dimensions; this cavity is surrounded by a strong white cyst, (the inner coat of the Graafian vesicle,) and as gestation proceeds, the opposite parts of this cyst approximate, and at length close together, by which the cavity is completely obliterated, and in its place there remains an irregular white line, whose form is best expressed by calling it radiated, or stelliform. Of this latter appearance, it ought to be observed here, that it is visible as long as any distinct trace of the corpus luteum remains, and forms one of the most essential characters, distinguishing this body from every other that might be confounded with it.

I am unable to state exactly at what period the central cavity disappears, or closes up to form the stellated line. I think I have invariably found it existing up to the end of the fourth month. I have one specimen in which it was closed in the fifth month, and another in which it was open in the sixth: later than this I have never found it.

After the period of gestation has been completed, or the contents of the uterus prematurely expelled, so that gestation ceases, the corpus luteum soon begins to exhibit a very decided alteration in all its characters, until at length it is no longer to be found in the ovary. The exact period of its total disappearance I am unable to state; but I have found it distinctly visible so late as at the end of five months after delivery at the full time, but not beyond this period; and the corpus luteum of a preceding conception is never to be found along with that of a more recent, when gestation has arrived at its full term; but in cases of miscarriage, repeated at short intervals, it may.

At the time of delivery, the corpus luteum is neither so large,

[1] Haller. "Ex luteo rubens," Bäer. "E rubella flava." Rœderer.

[2] I have met with this central cavity in the ovary of a cow recently impregnated, large enough to receive the end of the little finger.

nor so vascular, as at the earlier periods of pregnancy, except the woman should happen, at the time of her death, to be labouring under inflammation of the uterine system; in which case the corpus luteum partakes of the turgescence of the other parts, and very remarkably, of their increased vascularity; a striking instance of which is represented in a preparation in the writer's museum, taken from the body of a woman who died of inflammation of the womb, two days after delivery: the central radiated white line is very distinct, and the vessels having been injected, the substance of the corpus luteum is quite crimsoned, and externally, the ovary continues to exhibit the superficial cicatrix, and the alteration of form produced by the projection of the part containing the corpus luteum.

In a preparation, which shows the appearance of the corpus luteum in a woman who died of pneumonia, exactly five weeks after delivery, at the full time, it is diminished in size to about one half of its original dimensions, (measuring only 4½ lines by 4,) is closer in its texture, and its colour was becoming indistinct in numerous points, so that it appeared paler, but the radiated central line is quite distinct; its vascularity also was diminished, as fine injection could not be made to pass into it: the external surface of the ovary exhibits the greater size and prominence of one part, and the fissure on it is still well marked; it is particularly deserving of recollection here, that there is *only one cicatrix* observable on each ovary, although the woman from whom they were taken had borne six children.

In another specimen in my museum, taken from the body of a woman who died in the twelfth week after delivery, the external prominence was greatly diminished, but was still sufficiently obvious to indicate the exact situation of the corpus luteum, as was also the superficial cicatrix: the corpus luteum itself had lost much of its colour, and what remained became, on immersion in spirits, of a light gray shade; the texture of its substance was much more condensed,[1] and resembled that of a cut apple; its dimensions are much reduced, being only three lines by less than two, but the central radiated white line is distinctly observable.

Lastly, in the case of a young woman who died *five months* after giving birth to her first child, the ovary retained very little of its increased size, or altered form; the prominence was hardly to be recognised; but the external cicatrix was perfectly obvious. When opened, the corpus luteum exhibited its peculiar colour only in one very small spot, measuring very little more than one eighth of an inch in length, and one sixteenth in breadth, but still exhibiting, in its centre, the irregular white line: the yellow colour completely disappeared when immersed in perfectly pure rectified

[1] This and the specimen previously described illustrate well Rœderer's description, "sensimque in scirrhum flavum indurari." Icones, &c. p. 45.

spirit, diluted with water.[1] Beyond this period, I have never detected the existence of the corpus luteum:[2] the vulgar notion, however, is, that it is a permanent structure, and that, consequently, we have only to examine the ovaries after death to enable us to tell, not only whether a woman has borne children, but the exact number of her offspring, from the number of corpora lutea existing in the ovary. This is quite an error, and, probably, arose from a misconception of the meaning of such an expression as that of Haller, when he says—"Numerum credo eundem esse, qui est fœtuum;"[3] or, as in another place, "Numerus corporum luteorum est in ratione fœtuum."[4] By this expression, however, he only meant, that their number was the same as that of the fœtuses lodged in utero in one gestation, which indeed we find expressly stated by De Graaf, whose words are—"Deteguntur, unus aut plures, prout animal, ex illo congressu, unum aut plures fœtus in lucem edet."[5]

Hence, when there is only one fœtus, there is only one corpus luteum. In cases of twins or three children, there will be a corresponding number of these bodies in the ovary or ovaries, for they may be all formed in one ovary only, or some in each. This suggests a circumstance of great importance connected with the number of these bodies which may be found; which is, that occasionally a corpus luteum may be discovered without a fœtus, or a greater number of them than there are fœtuses produced at the time. Thus, in one instance, I found two corpora lutea in the ovary of a woman who killed herself, by medicine taken to produce abortion. She was reported to have expelled but one ovum. Haller notices this occasional occurrence, and explains it thus: "Si unquam, absque fœtu, corpus luteum in ovario repertum est, quod est rarissimum, credibile est, eum fœtum abortu perditum, aut alio modo destructum, disparuisse."[6] I have had several opportunities of verifying this observation, and, amongst other instances, I once found ten corpora lutea in the ovaries of a sow, but only nine fœtuses in the uterus; but at length, after a very diligent search, I discovered, in one of the cornua, the remains of another fœtus which had been blighted, and was in a state of partial decomposition. Haighton also observed this occurrence, but adds that "the uterus, in these cases, has borne the marks of an early and recent

[1] This does not happen, except in a slight degree, when the corpus luteum, taken during gestation, or just at the time of delivery, is placed in contact with the same fluid.

[2] The gradual decline and ultimate disappearance of the corpus luteum is very distinctly noticed by De Graaf and Rœderer: the former observes, "enixo jam fœtu, globuli illi rursus imminuuntur ac tandem evanescunt." De Organis, &c. p. 178: and Rœderer remarks, "Post puerperium eo magis contrahi et indurari illa corpora videntur, quo remotior fit partus." Icones, &c. p. 43.

[3] Elem. Physiologiæ, vol. viii. p. 36.

[4] Op. Min. vol. ii. p. 457.

[5] De Organis Mulierum Generat. &c. p. 178.

[6] Elem. Physiologiæ, vol. viii. p. 36.

abortion ;"[1] and Cruikshank, as mentioned in another place, speaks of the corpus luteum as a certain mark of conception, "whether the embryo is visible or not."[2]

On the other hand, a vesicle may contain two ovula,[3] in which case twins may be accompanied with only one corpus luteum. From such facts, follows of necessity this circumscription of the conclusion to be drawn from what we may observe in the ovaries, viz. that the presence of a corpus luteum does not prove that a woman has *borne a child*, although it would be a decided proof that she had been impregnated and had conceived; because it is quite obvious that the ovum, after its vivification, may be, from a great variety of causes, blighted and destroyed, long before the fœtus has acquired any distinct form. It may have been converted into a mole or hydatids. Thus, however paradoxical it may, at first sight, appear, it is, nevertheless, obviously true, that a woman may conceive, and yet not become truly with child; a fact already alluded to, p. 31, as noticed by Harvey. But the converse will not hold good. I believe no one ever found a fœtus in utero, without a corpus luteum in the ovary, and, that the truth of Haller's corollary, "nullus unquam conceptus est absque corpore luteo,"[4] remains undisputed.

Considering the results constantly presented to us by examination, I feel utterly at a loss to imagine what could have induced the following assertion of Sir E. Home: "The remains of the corpus luteum at nine months *after impregnation of the ovum*, are so indistinct as hardly to be recognised; but in the opposite ovarium, there is, commonly, a corpus luteum far advanced, forming another ovum; and it will be found, that all the preparations of corpora lutea, taken from the ovaria of women who die in childbed, actually belong to this new ovum not yet completely formed."[5] Now, experience convinces us of the contrary of every statement here made, and one question will be sufficient of itself to show their inaccuracy: premising that I deny altogether the statement, that there is "commonly" found a second corpus luteum, I would ask, if this corpus luteum, always found in the ovaria of women who die in childbed, belongs to the ovum not yet completely formed, how does it happen, that we always find on its surface the cicatrix through which the ovum has already escaped?

A similar, and equally erroneous idea obtains, very generally, with regard to the cicatrices on the surface of the ovaries, which have been already noticed as marking the situation of the corpus

[1] Philosophical Transactions for 1797, p. 166.

[2] Ibid, p. 200.

[3] "Denique afferam, me bina ovula semel in canis vesiculâ distinctissime vidisse, et aliâ vice bina ovula in scrofæ vesiculâ vidisse, me putare; unde, numerus, ovorum a corporum luteorum numero nonnonquam diversus, facile explicandus est," Baër de Ovi Genesi, &c. p. 18.

[4] Opera Minora. vol. ii. p. 458.

[5] Philosopical Transactions, 1819, p. 63.

luteum. These are supposed by many to be permanent and ineffaceable, and, of course, certain indications of the number of children borne by the woman during her life, or of the number of times she had conceived. But such is not the case; the ovaries of women who have borne several children, will sometimes be found exhibiting only one or two of these rents, or marks on the surface, a very distinct instance of which has been already noticed, p. 154; the woman in this case having given birth to six children, and yet the ovaries exhibited only one cicatrix on each. More recently, I used a uterus for demonstration at lecture, taken from the body of a woman who had borne seven children, the youngest of whom was four years old at the time of the mother's death, and there was not even one cicatrix on either ovary. On the other hand the effects of inflammation, or the bursting of small abscesses in the ovary, may produce cicatrices, which cannot be distinguished from those caused by the escape of the impregnated ovum.

Both the positions here advanced are in opposition to the generally received opinion, especially the former, that the cicatrices are not permanent; but having taken much pains to assure myself, with certainty, of the real state of the case, I feel no hesitation in announcing both conclusions as perfectly established by facts. The occurrence of the cicatrices on the surface of the ovaries, without previous conception, is noticed by De Graaf[1] and Rœderer, the latter of whom gives an engraving of them, and he says the drawing was made, for the express purpose of showing the number of these cicatrices, although the woman had never been with child.[2]

Our systems of medical jurisprudence are lamentably inaccurate on these points; in one, we actually find the cicatrix on the surface of the ovary considered as the corpus luteum,[3] and it would be easy to refer to more than one modern system of midwifery, in which the same error is to be found.

Having, thus far, described the characters of the true corpus luteum, as accurately as repeated observations, and dissections of a great number of women, and a much larger number of brute animals, have enabled me, I wish to declare, first, that I never, in any one instance, saw the corpus luteum, having the characters here described as belonging to it, except in females who had previously been impregnated; and my firm conviction is, that such a corpus luteum was never found in a virgin animal.

As, however, different opinions have been entertained on this subject, it becomes necessary to examine them, and ascertain their value. The views entertained by those who deny the necessary

[1] De Organis Mulierum, &c. p. 172.

[2] "Exscopi icon delineata est, *ut membranæ externæ cicatrices, sulci, vel foveæ* satis copiosæ appareant. femina licet uterum nunquam gestaverit." Icones Uteri Hum. Grav. pl. vii. fig. 5. pp. 38-42.

[3] "In the place from which one of these bodies (ova) had been conveyed, a cicatrix was formed, which received the name of corpus luteum." Smith's Principles of Forensic Medicine, p. 489, ed. 1821.

connection between the formation of the corpus luteum and sexual intercourse followed by conception, are principally two. According to the one, the corpus luteum is a provision for conception, by which the ovum lodged within it is prepared and fitted for impregnation. According to the other view the corpus luteum is properly the effect of impregnation, but may also be produced by other adventitious circumstances causing high excitement of the generative apparatus, independently of sexual intercourse. The first of these opinions is generally supposed to have originated with the late Sir E. Home; but it is only justice to say, that he merely revived a theory, which had been exploded and lain dormant for a long series of years, as appears very clearly from a passage in Wrisberg. This writer, after stating that multiplied observations, both in the human race and in quadrupeds, proved that the corpus luteum was not to be found in the ovaries "ante congressum fœcundum et inde pendentem conceptionem," adds, "ruit itaque ingeniosum potius quam naturæ congruum, de usu et functione corporis lutei, latum judicium, conceptionis materiem ex parte sexus sequioris, comprehendere et secernere."[1] The opinion here alluded to, which was that of Malpighi, Santorini, Valisneri, and Bertrandi, most probably arose from their having found (as many others have also) the corpus luteum formed, before the expulsion of the ovum from the ovary, but not before its impregnation. It is remarkable that Sir E. Home should have promulgated it anew, without even noticing its former existence, and that he should have done so on the data furnished to him by a single case,[2] in which he examined the body of a young woman who died a few days after conception, when he found, what he, apparently without much reason, supposed to be an ovum, in the uterus, and a corpus luteum in one of the ovaries. From this, he concludes, at once, that this was the commencing provision for a future conception, not the result of the former; but the reasons are not stated.

It has been already shown, that a similar notion was entertained many years ago, and its accuracy disproved by observation; but it is not altogether satisfactory, nor consistent with the spirit of philosophic enquiry, to reject an opinion, merely because it has been already exploded, however high may have been the authority for its rejection. We must, therefore examine this doctrine upon its own merits, before we can refuse it our assent. In the first place, then, if such a statement were correct, corpora lutea ought to be found in the ovaries of almost all women examined just before, or during the period of life, in which they are apt for conception. No one has ever asserted that this is so; and in point of fact we know it is not the case. In the second place, if such were the relation of the corpus luteum to conception, it ought to be found in a state of greater development, as the distance of time, from the former conception, increases: now we have demonstrative proof, that exactly

[1] Vide paper by Wrisberg, in Trans. Soc. Reg. Gœttingæ for 1781.
[2] This he himself declares; vide Philos. Trans. 1817, p. 255.

the contrary happens:[1] see p. 153 et seq. In the third place we find that their number corresponds to the number of fœtuses which have been produced, as already explained.

Such objections might easily be multiplied, but those already stated appear more than sufficient for our purpose. The other assertion, that corpora lutea may be produced independently of sexual intercourse, or conception, during periods of lasciviousness, or from the stimulus of strong passions, or unnatural enjoyments, requires a very careful examination, inasmuch as if it be really borne out by facts, the presence of the corpus luteum in the ovary would cease to be of any value, whatever, as a proof of impregnation; and believing, as I think I have full grounds for doing, from a very long-continued examination of the subject, that the real corpus luteum is the result of conception, and of nothing but conception, I think I shall be able to show, that some of the assertors of this doctrine which I impeach, have, in some instances, merely repeated the statements of others, without examination; while others have misrepresented the opinions which they quote in their support; and others, again, have mistaken, for true corpora lutea, accidental formations in the ovaries, having no one character, except the colour of the bodies, which really deserves the name.

Most of the writers who advocate the production of corpora lutea without impregnation, premise, as a powerful support in their favour, the opinion of Blumenbach, which is thus spoken of;—"In the year 1788 Blumenbach *showed* that corpora lutea may exist in the ovaries of virgins."[2] Now, before proceeding to review any of the opinions or assertions built on the authority of this great physiologist, it is desirable, first, to examine what he has *really* said on this subject. His observations are to be found in a *Specimen Physiologiæ Comparatæ*,[3] published in 1788, and, in my opinion, are very far from warranting the conclusion so generally taken for granted to result from them; first, because his own definition of the corpus luteum renders it extremely doubtful whether his observations apply to the body really deserving that name, or merely to the cicatrix on the ovary connected with it. His words are: "Notum est, post fœcundum coitum in muliere aliisque mammalibus femineis, in alterutro ovario *fissuram* reperiri cruentam, ex ruptâ sub œstrum venereum unâ alterâve earum vesicularum, quas Graafius pro veris ovulis venditaverat; idemque vulnusculum, temporis progressu, in *cicatricem abire*, *cortice eleganter vasculoso*

[1] Rœderer thus sums up his observations on the progressive changes which the corpus luteum undergoes: "Facile ex hactenus, de corpore luteo expositis apparet, carneam quasi vel glandularem pĕr graviditatem substantiam esse lutei corporis, sensimque in scirrhum flavum indurari, mediumque nucleum fuscum formari; *contrahi porro illam substantiam penitusque tandem perire.*" Icones, &c. p. 45.

[2] See a paper by Mr. Stanley, in the Trans. Coll. Phys. Lond. vol. vi. p. 421-2.

[3] Trans. Soc. Reg. Gœttingæ, vol. ix.

cinctam, atque Malpighii inde temporibus, lutei corporis nomine insignitam."[1] And, secondly, even if we are satisfied that he there speaks of the true corpus luteum, which I much doubt, it is very remarkable, that in no one part of his paper does he speak as from personal observation or examination of the subject by himself, but confines himself to physiological reasonings grounded on the facts observed by others,[2] from the consideration of which he declares his *belief*[3] in one place, and his *suspicion*[4] in another, that the fact may be so, but he no where asserts that he saw an instance of it; and he adds, that all the cases his reading furnished him with happened in Italian girls, whose climate he appears to suspect might have something to do with the matter. The passage in which this is expressed appears, even from its singularity, worth quotation here; it is as follows:—"Num climati quoque aliquod tribuendum, decidere non audeo, annotans tantummodo quotquot mihi hactenus *apud auctores* occurrerunt ejusmodi haud inficiendi casus, eos non nisi in Italicis virginibus observatos fuisse."[5]

Meckel, also, is by some asserted to have maintained this doctrine; but it appears to me, that so far as his observations go, they afford it very little, if any support at all. He commences with these words:—"The internal organs of generation are modified, not by the act of intercourse merely, but by *conception alone*. There is developed in the ovary a peculiar body called corpus luteum,"[6] which he then describes, as resulting from a change produced in one or more of the vesicles of De Graaf; and adds, "the influence of the male semen is the ordinary, and regular cause of this change, which, however, *it appears* may be effected under the influence of other stimuli, *perhaps* by the imagination or unnatural enjoyments." Now, it is, I think, quite plain, from the language of the above passage, that he is alluding to the opinions of others, and not stating a fact of which he had assured himself; and accordingly he immediately subjoins, "in truth, many of these rare cases, in which corpora lutea have been found in unmarried women, and in girls having the physical marks of virginity, allow the belief that the formation of these bodies *had been preceded by sexual intercourse and fecundation*." He afterwards makes an observation which, if properly understood and appreciated, would have prevented many of the absurdities which have been promulgated on this subject. "They speak," says he, "of corpora lutea which have been found in new-born infants[7] or very young animals; but the obvious answer to this is, that *every yellow substance* met with in the ovary *is not a corpus luteum*."[8]

[1] Op. cit. pp. 109-10.
[2] "Corpora lutea in innuptis observarunt *auctores*." Op. cit. p. 113.
[3] "Et ita corpora lutea in virgineo corpore oriri *confido*."
[4] "Non absimilem originem *suspicor*." Op. cit. p. 113.
[5] Loco citato.
[6] Anatomie Descriptive, &c. p. 735.
[7] See Granville's Illustrations of Abortion, p. vi. prop. 36.
[8] Anatomie Descriptive, p. 736.

What but the most complete mistake on this point, could have induced an annotator on Beck's Medical Jurisprudence to hazard the following observation :—"A recent case has in my opinion completely overthrown the theory, that even strong passions are necessary to the formation of the corpora lutea : the subject was *not above five years old*, and the hymen of course entire ; she died of *tubercular disease* in the lungs, yet in her ovaries were *numerous corpora lutea* as distinct as I ever saw them in the adult impregnated female."[1] The only comment necessary to make on this statement is, simply to remark, that *one* real corpus luteum, as it is found "in the adult impregnated female," is fully as large, or even larger than the ovary of a child five years old, therefore it is *impossible* that there could in such a case be several of them. Madame Boivin notices this case, and makes upon it the following unaccountable observation : "Etait-ce, comme le pensent Meckel et autres, un resultat de la masturbation ?"[2] in a child of five years old : proh pudor ! !

Dr. Blundell is constantly quoted as maintaining, and having proved by experiment, that the corpus luteum is not necessarily the result of impregnation ; but, if I read his opinions rightly, they have directly the opposite tendency, and are indeed strongly corroborative of the view entertained by me. I here subjoin them, from his recently published work.

"After all that I have said, we now come down to this simple conclusion, that corpora lutea of fabiform shape, and large, or larger than a pea, *are alone deserving of confidence as the indications of impregnation*, to which may be added, that the force of this testimony will be strengthened, provided a superficial and wrinkled cicatrix be observed on the ovary above the yellow mass." "Whether, however, the luteum, with all its prescribed conditions above laid down, may form in the *human* ovary without intercourse altogether, or even without such intercourse as may produce impregnation, I am not prepared peremptorily to decide. I prefer the cautious manner of the Academics, to the decisive manner of the Dogmatists, and shall therefore content myself in the conclusion, with expressing my persuasion merely, that the fabiform corpus luteum, with asteriscal cavity—of yellow colour—large as a pea, or larger, and seated beneath a cicatrix formed on the corresponding surface of the ovary, may be looked on, in the present state of our knowledge, *as a strong presumptive proof of impregnation ;* adding, however, at the same time, that I conceive a jury ought to be cautious of giving too much weight even to this evidence, when human life is at stake."[3]

Dr. Bostock, in his very able and instructive work on physi-

[1] Beck, ed. 3d, p. 103. Note, signed *Dunlop.*

[2] Maladies de l'uterus et de ses annexes, tom. 1. p. 49.

[3] Observations on the Diseases of Women, sect. xli. On the ovarian signs of impregnation, pp. 209-10.

ology,[1] gives a summary of the opinions on this subject, but avoids hazarding more than a mere hypothesis himself. It is plain, however, that he inclines to the belief "that corpora lutea are not the necessary result of impregnation."[2] But I must observe, that he overstates the opinion of Blumenbach, when he asserts, that he "decidedly maintained" such a doctrine, which I have already shown he did not; and he is equally inaccurate in quoting Cuvier as a supporter of this physiological heresy: it is only necessary to refer to the passage quoted,[3] to see that Cuvier is there not speaking of the corpus luteum at all, but of the cicatrices observed on the ovaries; *and throws out a question*, whether these may not sometimes be caused by the passage of germs, under the influence of unnatural stimuli.

Dr. Seymour, in his very interesting work on the ovaria,[4] has given a well-arranged summary of the conflicting opinions and theories on this subject, to which he has added some very judicious and pertinent remarks; but upon the particular question before us, he expresses himself, at least, vaguely. He, however, appears to believe in the *possibility* of the production of corpora lutea without impregnation, but nowhere asserts that he saw an instance of the kind; on the contrary, the result of his own investigations, as stated by himself, is so strongly against such a belief, that I willingly quote it, in his own words, as a very strong fact in favour of the opinion which I entertain on the subject. "It has occurred to me," he says, "to have examined the ovaria in the human being, and in animals at the period of puberty in very many instances; many had ova ready for impregnation, large, projecting, vascular, *yet no corpora lutea were visible.*"[5]

Such, also, has been the result of my own examinations of a very large number of bodies both of women and of animals, and in no one instance did I ever find a true corpus luteum, except as the product of conception; and reasoning merely on the subject, I would ask, if mere imagination, or highly excited desires, without intercourse, are capable of causing such a change in the condition of the ovary, should we not expect to find corpora lutea, almost invariably, in women who have been living with their husbands, or otherwise enjoying, constantly, the natural and perfect excitement of the generative system, without conception? Of the non-occurrence of which consequence, I can speak in very decided terms, from numerous opportunities of making examinations under such circumstances.

I shall now proceed to state, as briefly as possible, the opinions of those whose careful, extended, and repeated examinations of the subject fairly entitle them to the highest degree of credit.

[1] Elementary System of Physiology, vol. iii. p. 36 et seq.
[2] Note, loc. cit.
[3] Leçons d'Anat. Comp. t. v. p. 57.
[4] Illustrations of some of the Diseases of the Ovaria.
[5] Op. cit. p. 32.

De Graaf, who is justly celebrated as an accurate anatomist and physiologist, devoted much of his attention to the generative system of the female, and in his work on this subject published in 1672,[1] we find him thus speaking. "Quæ vero secundum naturam, aliquando tantum, in mulierum testibus inveniuntur; sunt globuli, qui, glandularum conglomeratarum adinstar, ex multis particulis à centro ad circumferentiam recto quasi ductu tendentibus, conflantur, et propriâ membranâ obvolvuntur. Hos globulos non omni tempore in fœmellarum testiculis existere dicimus; quia *post coitum tantum* in illis deteguntur, unus aut plures, prout animal ex illo congressu unum aut plures fœtus in lucem edet." De Graaf applied to this formation the name of corpus glandulosum, which name it retained until Malpighi changed it to that of corpus luteum, on account of its colour.

The great Haller paid particular attention to this subject, in the investigation of which, he sacrificed many sheep, goats, and cows, besides great numbers of other animals; and by opening the bodies of several, at gradually prolonged intervals of time from intercourse with the male, he traced the corpus luteum from its first development through all its successive stages of increase and decline.[2] He tells us, also, that he had opened the bodies of upwards of a hundred women, and met with the corpus luteum about ten times, but never except in those who were at the time pregnant, or had brought forth children.[3] "Quotquot feminæ nullam fecundationem ante mortem passæ sunt, tot etiam incisæ nulla corpora lutea ostendunt." Now it is to be observed, that Haller continued this investigation through many years, and was perfectly well aware of the theories of Bertrandi, Valisneri, and Buffon, with the latter of whom he corresponded on the subject, and the result of his observations he embodies in two brief but most important propositions:—"Nullus unquam conceptus est absque corpore luteo:"[4] "Corpus luteum in virgineis animalibus nullum est; est ex conceptione oritur, neque prius paratum adest." The first of these propositions has never been questioned, and the truth of the second appears to me equally incontrovertible.

The observations of Blumenbach were published in 1788, and nine years afterwards, or in 1797, Dr. Haighton read before the Royal Society of London the details of many experiments on the subject of animal impregnation,[5] and thus expresses himself on this point: "I may then say, that no corpora lutea exist in virgin animals, and that, whenever they are found, they furnish incontestible proof that impregnation either does exist, or has preceded."[6]

[1] De mulierum organis generationi inservientibus tractatus novus. Ludg. Bat. 1672. pp. 177-8.
[2] Vide Elem. Physiologiæ, vol. viii. sect. xv.
[3] Vide Op. Min. vol. iii. pp. 185, 186.
[4] Op. Min. vol. ii. p. 458.
[5] See Philos. Trans. for 1797, p. 159.
[6] Ibid. pp. 163-4.

And again, he says, "I decline trespassing on your patience, and therefore lay before you only the conclusion; which is, that in the great variety of experiments on brute animals which my physiological enquiries have led me to conduct, as well as in the extensive opportunities I have had of observing the ovaries in the human subject, I have never seen a recently formed corpus luteum unattended with some circumstance or other connecting it very evidently with impregnation."[1]

In the same year Mr. Cruikshank published his account of a series of experiments also on this subject, and we find him remarking as follows:—"These calyces, on the expulsion of the ova, enlarge and become yellow, projecting above the external surface of the ovary, and form *corpora lutea, a certain work of conception* in all quadrupeds, and in women themselves, whether the embryo is visible or not."[2] William Hunter, and his editor, Dr. Baillie, speak of the corpus luteum as the product of conception, but do not even mention the supposition of its possible occurrence in any other way.[3]

When Mr. Angus was tried in Liverpool, in 1808, for the supposed murder of Miss Burns, great doubt arose as to whether the condition of the uterus or its appendages was such as to prove a pregnancy recently existing. "It was not until after the trial that the ovaria were examined. They were then divided in the presence of a number of physicians, and a corpus luteum distinctly perceived in one of them. Mr. Hay took the uterus and its appendages to London, and showed it to the most eminent practitioners there. He received certificates from Drs. Denman and Haighton, Messrs. Henry Cline, Charles M. Clarke, Astley Cooper, and Abernethy, all stating that it exhibited appearances that could alone be explained on the idea of an advanced state of pregnancy. *And it appears to have been universally allowed, that the discovery of the corpus luteum proved the fact beyond a doubt.*"[4]

The latest investigations on this subject, of which the writer is aware, are those of Dr. G. Valentine of Breslau, published in his work on the development of the ovum, where he thus speaks: "Those corpora lutea, falsely so called (for in different animals they have constantly different colours) are universally and properly regarded, in the present day, as the surest sign of a destroyed Graafian vesicle, and of an escaped ovulum, and therefore of impregnation having taken place.[5]

In addition to the authorities here cited, I may be allowed to add the result of my own observations, which have been now continued through a period of nearly ten years, during which time, I never omitted a single opportunity within my reach for examining the

[1] Phil. Trans. for 1797, p. 166.
[2] Ibid. p. 200.
[3] Description of Gravid Uterus, 1794, pp. 14—74.
[4] See report of the trial; and Edinb. Med. and Surg. Journ. vol. v. p. 220.
[5] Edinburgh Medical and Surgical Journal, April 1836, p. 420.

bodies of women of all ages, and under all the varying circumstances of virginity, after intercourse, during gestation, and subsequent to delivery, at different periods from conception; these opportunities having been afforded by more than one large hospital, as well as in private practice. I have also dissected hundreds of the inferior animals with reference to this point, and have in my museum preparations of ovaries exhibiting the corpus luteum in different conditions in the human female, and also in cows, mares, sheep, sows, goats, bitches, cats, hares, rabbits; and my firm conviction is of the truth of both Haller's propositions, viz. that "*conception never happens without the production of a corpus luteum*," and that, "*the corpus luteum is never found in virgin animals, but is the effect of impregnation.*" It appears to me, that those who have supposed, or asserted, that they may exist without impregnation, and of course be found in the virgin ovary, have been led into the error by confounding appearances and structures essentially different, and in fact having only one character in common, which is their colour, altogether forgetting that "every yellow substance in the ovary is not a corpus luteum."[1] It is allowed by those writers that "the corpora lutea of virgins may in general be distinguished by their smaller size, and by the less extensive vascularity of the contiguous parts of the ovarium." Now, I have seen many of these virgin corpora lutea, as they are unhappily called, and have preserved several specimens of them, but not in any one instance, did they present what I should regard as even an approach to the assemblage of characters belonging to the true corpus luteum, the result of impregnation; from which they differ in all the following particulars:

1. There is no prominence or enlargement of the ovary over them.
2. The external cicatrix is almost always wanting.
3. There are often several of them found in both ovaries, especially in subjects who have died of tubercular disease, such as phthisis, in which case they appear to be merely depositions of tubercle, and are frequently without any discoverable connection with the Graafian vesicles.[2]
4. They present no trace whatever, of vessels in their substance, of which they are in fact entirely destitute, and of course cannot be injected.
5. Their texture is sometimes so infirm, that it seems to be merely the remains of a coagulum, and at others appears fibro-cellular, like that of the internal structure of the ovary; but never presents the soft, rich, lobulated, and regularly glandular appearance which Hunter meant to express, when he described them as "tender and friable like glandular flesh."

[1] *Meckel*, supra citat.

[2] Of which the case already alluded to, as related by Dr. Dunlop, is a well-marked instance.

6. In form they are often triangular, or square, or of some figure bounded by straight lines.
7. They never present either the central cavity, or the radiated, or stelliform white line which results from its closure.

This latter peculiarity, in common with several others observable in these spurious productions (whether occurring in virgins or in other women, but not the result of conception) even when they are connected with a Graafian vesicle, depends on their different mode of formation; a circumstance which deserves especial attention, as pointing out the essential difference between a very large class of these pseudo-structures and the true ones.

The history of their formation appears to me to be this: accidental, or morbid determination takes place towards a vesicle in consequence of which it is distended with fluid, and either bursts and discharges its contents (in which case there may be found an external cicatrix), or the fluid is again absorbed; but in either case, there is often deposited on the *internal surface* of the vesicle, a substance somewhat resembling the corpus luteum in colour, but in general not more than about one sixteenth of an inch in thickness, and entirely destitute of blood vessels: sometimes it is very much thinner even than this, amounting to little more than a mere layer of colouring matter lining the vesicle. In this condition I have often found them, the vesicle being enlarged to three or four times its natural size, full of fluid, and its internal surface of a bright yellow colour, but when the vesicle collapses, either in consequence of rupture of its coats, or the absorption of the contained fluid, the inner surface of this new deposit closes upon itself, and forms an irregular line of junction which is generally darker than the rest of the structure, and not unfrequently they present the yellow colour only on the circumference, while their centre is so dark as to be almost black; but, from their situation, they are entirely without lining membrane, to form either a central cavity or white stellated line, which, in the true corpus luteum, is formed by the closure of the inner coat of the vesicle; for the same reason also, these accidental formations are in general much smaller than the others, and they are moreover totally without vessels in their structure; so that, however minutely the rest of the ovary may be pervaded by fine injection, not a particle of it will pass into the bodies thus formed.

There is a change, described by some, as taking place in the form of the Fallopian tube, in consequence of impregnation; which, although my own observation leads me to consider its occurrence as doubtful, and, at most, only accidental, or occasional, deserves to be noticed, as it has been considered a mark of value by some very high authorities, among whom I may mention Dr. Hamilton, of Edinburgh, who considers it peculiar to pregnancy. The change alluded to consists in the formation of a sacculus, or dilated pouch at about an inch from the fimbriated extremity of the tube, as in the figure of Rœderer, tab. iv. lit. l, who applies to it the term

antrum tubæ, and hazards the very improbable conjecture that it may, perhaps, arise from some of the fluid which escapes from the Graafian vesicle into the tube, delaying near the fimbriated end, and dilating it.[1] A perusal of what Rœderer says on the subject would, I think, lead to the conclusion that he himself thought the matter very doubtful evidence, for he expressly asks, "An ex factâ conceptione, ista antra nascuntur?" having previously mentioned two cases of women dying about the time of delivery, in whose tubes these sacculi did not exist.[2] Among fourteen gravid uteri which I examined, expressly for the purpose, within the last few days, I found this change existing in only one, while on the other hand I have frequently seen it in the tubes of uteri in the unimpregnated condition.

I feel bound to state, that I am not competent to offer, on this point, any thing like a decided, or satisfactory opinion, not having fully tested its value by a reference to a sufficient number of facts; I shall therefore for the present only say, with Rœderer, "ulteriori indagine ista antra non indigna esse mihi videntur;" an observation which might, perhaps, with equal propriety, be extended to many of the subjects which I have endeavoured to elucidate in the preceding pages.

[1] Icones Uteri Hum. Grav., p. 14, note 6.
[2] Vide loc. supra cit.

ON

THE PERIOD OF HUMAN GESTATION.

Whether we regard the question of the period of human gestation in reference to the determination of its natural or ordinary limits, or turn our attention to the still more debated occurrence of protraction of its period, we find connected with the investigation, a multitude of considerations of deep and varied interest, when viewed on the one hand as subjects of physiological enquiry, and on the other, of paramount importance, as connected with the due administration of law and justice; and involving, moreover, some of the most delicate investigations that affect our social relations. It is sufficient only to remember, that the purity of virtue, the honour and peace of domestic life, legitimacy, and the succession to rank, titles, and property, not unfrequently depend solely for their invalidation or establishment on the settlement of this question; while the fact to be established is, unfortunately, one which does not always admit of being tested by any fixed criterion either in law or physiology, but on every new occasion of doubt or difficulty depends for its elucidation on the contradictory evidence of witnesses, and the opinion that may in the particular instance discussed, be formed by judges or committees, of the connection between facts stated and admitted, and their relations with other circumstances, in general not admitting of any certain or satisfactory method of proof.

In the laws of this country which bear upon the question of legitimacy and the period of human gestation, there is frequent reference to "the usual period of gestation," "the course of nature," "the laws of nature," &c., a conformity to which, in the birth of any individual whose legitimacy may happen to be questioned, constitutes one of the requisites essentially necessary to satisfy the law; which however does not more strictly define the *legitimum tempus pariendi* than by declaring it to be, *usually*, nine calendar months or forty weeks;[1] and Blackstone says, "From what has been said it appears, that all children born before matrimony are bastards by our law; and so it is of all children born so long after the death of the husband, that by the *usual course of gestation* they could not be begotten by him. But this being a matter of some uncertainty,

[1] "Quod tempus est usitatum mulieribus pariendi," Lord Hale, in note in Coke on Littleton, fol. 8.

the law is not exact as to a few days."[1] Hence the legitimacy and civil rights of children born within that period are, as far as the time of gestation is concerned, acknowledged in law.

Farther than this, neither our laws, nor those of America, fix any precise limit; but, whenever a question is brought before the judges involving the determination of the usual period of gestation in women, and the variations to which it may be liable, the matter is made, on every new occasion of the kind, a subject of discussion, to be decided by the evidence of witnesses examined at the time; and the facts proposed to be investigated, in reference to such questions, generally are—1. the natural period of gestation in women; 2. premature births; 3. the possibility of protracted gestation: each of which I shall now proceed to consider.

1. *Natural period of gestation in women.*—With regard to this point, it must be confessed, that our knowledge is by no means either so extensive, or precise as it might be, at first sight, expected in a matter apparently capable of being made the subject of daily observation; but the fact is, that we are very rarely able to ascertain, with any thing like certainty, the exact time of conception, and, consequently, having in general only one end of the chain, we can have no certain mode of counting the number of links of which it consists. Still, however, we are in possession of facts sufficient to warrant our belief, that the natural period of gestation is forty weeks, or 280 days, which is also the period acknowledged in law.[2] A good deal of the confusion on this point seems to have arisen from considering forty weeks and *nine calendar months* as one and the same quantity of time, whereas, in fact they differ by from five to eight days. Nine calendar months make 275 days, or if February be included, only 272 or 273 days, that is thirty-nine weeks only, instead of forty. Yet we constantly find in books on law and on medical jurisprudence, the expression, "nine months or forty weeks."[3] Another source of confusion has evidently had its origin in the indiscriminate use of lunar and solar months, as the basis of computation in certain writings of authority. This appears to have occurred in the Roman laws on this very subject. For although the Romans, after the reformation of the calendar by Julius Cæsar, generally made use of the divisions of the solar year, it is quite plain that in their calculations of the period of gestation, which they fixed at ten months, they referred to lunar months, as appears quite distinctly from the following passage in Ovid.[4]

> "Luna novum decies implerat cornibus orbem,
> Quæ fuerat virgo credita, mater erat."

[1] Commentaries, vol. i. p. 456.

[2] See Coke upon Littleton, 123, b.

[3] Vide Coke upon Litt., loc. cit. and Paris and Fonblanque, vol. i. p. 241. Smith's Principles of Forensic Medicine, p. 491. Dewees's Compendium of Midwifery, p. 164. Mr. Burns more accurately says, "nine calendar months and a week." Principles of Midwifery, p. 163.

[4] Fasti, lib. v.

Hippocrates, in his book "De Septimestri et Octomestri partu," calculates by lunar months, while in several others of his works, solar months are uniformly those referred to, and the Roman laws were founded on his authority. In like manner we find in the book of Esdras,[1] "nine months" spoken of as the fixed time of gestation; and in the Wisdom of Solomon,[2] "ten months" is the period assigned for the perfection of the child in the womb; a discrepancy which could only have arisen from the writers using different divisions of time.

Independently of the few cases in which we know of conception following casual intercourse, or perhaps a single coitus, we have no certain means of knowing the commencement of gestation, and are obliged to form our calculation either, 1st, from some peculiar sensations experienced by the female at some particular time; 2d, from the cessation of menstrual discharge; or, 3d, from the time of quickening; on each of which modes of reckoning, I shall offer a few brief observations.

That the great majority of women conceive without any peculiar sensation which would induce them even to suspect such a consequence, is a fact too well known to require to be further insisted on, especially when we know that conception has followed intercourse during states of insensibility, see p. 132; but on the other hand, I believe it to be perfectly established, that, occcasionally, such sensations are experienced, either at the moment, or very soon after.[3] Of this I subjoin a very decisive instance, furnished to me by my friend, Dr. Ireland, who permits me to transcribe his account of the case.

"I attended last month a lady whose husband was called out of this country, rather suddenly, on the 5th of April; in about three months after, she had a severe diarrhœa, and dreaded abortion, for which I was consulted; she recovered without aborting, and sent for me in some time after to inform me, she should require my attendance on the 10th of January. I was astonished at her precision, and mentioned the impossibility of reckoning so exactly; her answer, which I will not soon forget, was that her sensations the day her husband went to England left her no room to doubt her becoming pregnant at that time; she accordingly sent for me on the 10th of January, the membranes having spontaneously ruptured that morning, and though she was not delivered till the next day, yet her pains never left her from that time until she was well, which was on the 281st day from her husband's departure, the labour having commenced on the 280th day: her husband, who arrived some weeks before she was confined, assured me, this regularity as to time also occurred to her in a former confinement."

The two following cases occurred in my own practice. A patient of mine, who had been residing out of town for the benefit

[1] 2 Esdras, iv. 40.
[2] Chap. vii. 2.
[3] See p. 28, 35, 87, 88.

of her health during the summer, returned to her husband in the last week of October, a few days before the expected return of the menses, which appeared at the proper time, (Nov. 3,) but at the next period, 1st Dec., they were suppressed, and on the 10th she requested to see me, when she told me, rather significantly, that she knew she was in the family way from the time of her return home, notwithstanding the menstrual appearance in November, and she added, "remember I tell you now, that my confinement will take place on the 4th of August." On the third of August she had slight pains, which subsided, but returned again on the 4th, and again abated till the 5th, on which day she was safely delivered, after a labour of about three quarters of an hour. This lady told me, at the time of my visit to her in December, that the reason of her wishing to see me so early in her pregnancy was, that she had been told by a medical man, that, from her state of health, she would certainly lose her life if ever she became pregnant again: this cruel and silly intimation was, however, most happily belied, and the lady has since given birth to three fine, healthy children, and is herself in better health than she had previously enjoyed.

On the 14th of May my attendance was requested by a patient, whom I found just delivered of a fine healthy boy: she informed me that she had been married on the 6th of August, two days after which, her husband had been obliged to leave Dublin, and did not return for some months; the interval here, between conception and the time of delivery, must have been 280 or 281 days.

Calculations based, exclusively, on the cessation of the catamenia must, necessarily, be defective in affording us any thing like precise information, as to the exact period of human gestation: first, because conception may occur at any time between the termination of one menstrual appearance, and the time of its expected return, or, perhaps, even during the time of the discharge, as occurred in a case, related by Mauriceau,[1] and in which he remarks, that delivery took place at the end of nine months and three days. Secondly, there may be one or more monthly appearances after conception, as happened in the case above mentioned. My own observations lead me to the conclusion, that conception occurs in the great majority of instances within the first week after the menstrual discharge; and we are informed, that the knowledge of this fact was taken advantage of by Fernel,[2] when consulted by Henry the Second of France, as to the best means of rendering fruitful his queen Catharine de Medicis, to accomplish which, he advised the king to see her only immediately after the cessation of the catamenial period; the adoption of this advice was followed by complete success, and the queen, after long disappointment, gave birth to a child. In some cases, and these by no means few, conception

[1] Maladies des femmes grosses, tom. ii. obs. 676, p. 552.

[2] See Dict. des Sci. Med. tom. xxxii. pp. 391–2, and Dictionnaire Historique, Art. "*Fernel.*"

occurs immediately before the expected return of the menses, so that of two women who may have menstruated on the same day, and conceived before the next return, one may complete her full term of gestation, three, or even three and a half weeks, before the other, and hence a very common mode of calculation, among women themselves, is, to reckon forty-two weeks from the last menstruation, or forty weeks from the middle day of the interval; and I think it is reasonable to believe, that it was the adoption of this mode of calculation which induced the Romans to allow, as the period of gestation, ten lunar months,[1] amounting to two hundred and ninety-five days, or forty-two weeks and one day; and the same period is also assigned by Harvey, dating from the last menstruation; when, says he, "ten revolutions of the moone being expired they are delivered, and reap the fruit of their womb," &c.[2]

With regard to the time of quickening, the observations already made, chap. v. especially pp. 57–8, abundantly prove, that no reliance can be placed on it, as a satisfactory means of calculating the period of gestation; for, although, in a few instances, it has been observed to take place constantly at a particular period of gestation, in the vast majority of cases its occurrence is liable to infinite variety, and is quite uncertain in different gestations, even of the same individual.

An opportunity was once afforded to the writer of observing the natural term of gestation, under circumstances in which the day of conception was known with certainty. A lady who had been for some time under my care, in consequence of irritable uterus, went to the sea-side at Wexford in the month of June, leaving her husband in Dublin; a temporary separation being considered essential to the recovery of her health. They did not meet until the 10th of November, on which he went down to see her; and being engaged in a public office, he returned to town next day. The result of this visit was conception: before the end of the month she began to experience some of the symptoms of pregnancy; and when she came to town, on the 22d of February, she was large with child, and had quickened on the 28th of the month preceding. Her last menstruation had occurred on the 18th of October. She went on well through her pregnancy; and the writer was called on to attend her in labour on the 17th of August, when she gave birth to a healthy child, after a labour of a few hours' duration. Here the gestation exceeded nine calendar months by just one week, making exactly two hundred and eighty days from the time of conception. It may be observed, that this was the earliest instance of quickening which has presented itself to the writer, occurring, as it did, before the completion of the twelfth week.

In addition to the above, and that already related p. 170 on the

[1] Each lunar month consisting of twenty-nine days, twelve hours and a few minutes.

[2] Ent's Translation, p. 482.

authority of Dr. Ireland, the following was recently communicated by a gentleman on whose accuracy I place the most perfect reliance. The husband of a lady left home on the 8th of October, and did not return for six weeks; the lady was delivered on the 14th of July following, making exactly two hundred and eighty days, it being a leap-year.

2. *Premature births.* The premature birth of children, not unfrequently give rise to discussions of a very delicate and important nature, involving, on the one hand, the legitimacy of the child, and, on the other, the honour and fair fame of the mother, and consequently, the happiness of families; when suspicions are entertained that the development of the fœtus does not correspond to the period which ought to have been that of gestation, dating from the time of marriage, or the return of the husband, and so forth. It is, therefore, essentially necessary, that all who are likely to be consulted on such matters should possess themselves with as accurate a knowledge as possible of the progressive development of the embryo, and the marks, or characters which belong to each successive period of intra-uterine existence, even in the earlier months.

A full detail of the successive advances in fœtal development would, in the writer's opinion, be superfluous and misplaced here; and, to be satisfactory, would require a very lengthened account which the reader will readily find elsewhere;[1] but it appears very important to notice here, that from the results of accident, or the existence of disease in some of the structures of the ovum, especially in the placenta, the size and external characters of the fœtus may not at all correspond to the real period of gestation; for this very obvious reason, that, in consequence of the diseased condition of the medium of support, an insufficient, and, at the same time, unhealthy nutrition is afforded to the child, by which its growth and natural development are retarded, so that, at a given period, it will be found to present appearances properly belonging to a much earlier period of intra-uterine life. Thus, in a case already mentioned p. 30, the woman, who had been for two entire years previously, labouring under disease of the heart and with the catamenia suppressed all that time, had not cohabited with her husband for six months, when she miscarried of a fœtus presenting characters belonging to the fifth month; but, on examination, more than half the placenta was found in that state of consolidation, called the tubercular disease of that organ; and the umbilical extremity of the cord, just at its junction with the abdomen, was twisted to such a degree, that it looked as if it had been tied tightly round with a thread, being there reduced to one tenth of the diameter of the rest of it.

[1] See Sœmmering's Icones Embryonum Humanorum; Velpeau Embryologie; and Traité d'Accouchemens, tom. i. p. 320; Pockels; Beck's Medical Jurisprudence, 5th Edit. p. 178, where there is a very full summary of the accounts given by different authors; but the best account of the development of the fœtus known to the writer is that by Devergie, Méd. Légale, tom. i. p. 495, et seq.

The same circumstance was observed in a case which occurred to Dr. Ireland, who very kindly sent me the fœtus and placenta for examination; in this instance, the lady was more than six months pregnant, when she miscarried of a fœtus corresponding to about four months and a half; the placenta being in a state of disease similar to that just noticed. Several specimens of such occurrences are preserved in my museum; in one, the ovum of five months contains a fœtus not larger than it ought to be at two months and a half, and another ovum of the same age is accompanied by a fœtus of, apparently, six weeks' development; see pp. 142, 43.

Duparcque[1] gives the particulars of a case in which a lady sustained a severe shock by being thrown down violently in the sixth month of pregnancy; she, however, went her full time, and the child was born alive, but was hardly more developed than a fœtus of six months: in this case, also, the placenta was found altered in structure, being compact and atrophied.

I have already suggested, as a salutary caution arising from occurrences of the kind just related, that before we venture to pronounce an opinion on the age of a child which presents characters of less development than it ought to have, considering only the period of pregnancy known, or supposed to exist, we should carefully examine both the perfection of its own organisation, and the state of the appendages, especially the placenta and cord.[2] If these are not to be had, we cannot, in my opinion, in such cases, pronounce decidedly on the age of the child, without incurring the risk of being mistaken, and perhaps imputing impropriety of conduct to the perfectly chaste and virtuous.

But to return; there are two points of view under which it is necessary to consider prematurity of birth. We must enquire, first, what is the earliest period of gestation at which the condition of viability may be expected to exist; and secondly, can we admit, that a child may, in six or seven months, acquire that degree of maturity which we observe to belong to those who have continued in the womb during the whole natural period of gestation?

With regard to the first of these questions, it should be premised,

[1] Histoire, &c. des Ruptures de la Matrice, p. 38.

[2] I may be permitted to observe here, that a careful examination of the secundines in all cases of delivery, or abortion, will amply repay the trouble of the task, by the valuable facts which will be thus ascertained, in explanation of physiological difficulties which would otherwise lie buried in obscurity. I have for several years strictly adopted this habit, and owe to it several of the most interesting preparations in my museum. In explanation of certain circumstances connected with malformations, discoveries of great value have been thus made; witness the results obtained from the investigations of Geoffroy St. Hilaire, and still more recently, the highly interesting and remarkable case published by Sir A. Cooper, in which there were a healthy child, and a monster without heart or brain, in utero together, and attached to the same placenta; on examination, it was found, that the circulation was carried on by the vessels of the healthy child being continued into the cord of the monster. See Guy's Hospital Reports, No. 2.

that by viability[1] is meant such a degree of perfection in the new-born child, as renders it capable of sustaining its functions independently of the mother, and continuing its existence to adult age; a condition which, judging from my own experience, I do not believe to be acquired until seven months of intra-uterine existence have been compleeted; this was, also, the opinion of Wm. Hunter, given in answer to an interiogatory put to him on this subject by Mr. Hargrave when writing his notes on the legal time for human birth:—"A child may be born alive at any time after three months; *but we see none born with powers of living to manhood*, or of being reared, before seven calendar months, or near that time. At six months it cannot be."[2] And, still more recently, Dr. Hamilton has pronounced, as the result of his long extended observation, that he considers as fabulous, all accounts of children living to maturity, who were brought forth at the fifth or sixth month.[3]

I do not, therefore, take into consideration, or attach any value to such rare and wonderful histories as those of Fortunio Liceti, the Italian physician, who was said to have been born at four months and a half, and to have attained the age of manhood; nor to that of Cardinal Richelieu, in whose case, the parliament of Paris decreed, that the infant at five months possessed that capability of living to the ordinary period of human existence which the law of France required for establishing its title to inheritance.

Dr. Rodman of Paisley has related the particulars of a case in which the child survived, although the gestation was considered not to have exceeded nineteen weeks; but, this seems to have been taken on the mother's belief, and the length and weight of the child were such, as would indicate a gestation of between six and seven months.[4]

The writer saw one instance of a fœtus, which at the utmost could only have completed the fifth month, and which lived for a few minutes; and another of five months and a half, which lived for four hours: but in both, the state was that of mere existence, without the presence of any condition that could lead to the most remote expectation of life being continued. It may be mentioned here that the celebrated Chaussier was a seven months' child; as

[1] "La viabilité pour un enfant qui vient au monde n'est autre chose que la possibilité de vivre complètement et aussi long tems que le commun des hommes; c'est à dire de devenir un adulte, un homme fait, un véritable membre de société." Capuron, Médecine Légale, p. 152. "Nous definirons la viabilité, *l'aptitude à la vie extra-uterine, caracterisée par la maturité de l'enfant, la bonne conformation des principaux organes de l'economie, et l'etat sain de ces organes à l'epoque de la naissance.*" Devergie, Médecine Légale, tom. i. p. 698.

[2] "Ante septimum mensem fœtus non potest superesse." Haller, Elem. Phys. vol. viii. p. 423. The French civil code, however, regards as legitimate and viable, all children born after 180 days, or six months. Capuron, Cours d'Accouchement, p. 69.

[3] See Lyall's Gardner Peerage Case. Introduction, p. 28.

[4] See Edin. Med. and Surg. Journ. vol. xi. p. 455.

was also George III. one of the most longlived and prolific of our kings.

In the consideration of the second point, we have to contend with a very formidable difficulty, intrinsic to, and inseparable from the subject,—namely, the great variety constantly observed in the size, weight, strength, and appearance of children at the full time. Most of them, for instance, weigh from six to seven pounds,[1] while occasionally, we meet with instances where they are of double that weight. This should, at least, make us extremely delicate in forming, and cautious in pronouncing our opinion, particularly, when the period of gestation may have advanced to within a month of its expected termination; in which case, it might be impossible for us, with all our care and all our knowledge, to draw the distinction between a child of eight months, and one of nine.

But in such a case as occurs from time to time, where a woman, six or seven months after marriage, or the return of her husband, produces a healthy, well-formed child of the *full size* and *development*, we need hardly hesitate about its illegitimacy; at least, I never saw an instance, where a child, avowedly of six or seven months' growth, presented an appearance even remotely resembling that of a full-grown and matured fœtus. Even though the size alone may not enable us to distinguish the one from the other satisfactorily, there are several characters of imperfect developement which mark the really premature fœtus, whatever may be its size; while, on the other hand, there are others which accompany the fully matured child, although deficient in bulk.

Of the latter kind, are the colour and firmness of the skin; the perfect condition of the hair and nails; the full development of the lower extremities; the solidity of the bones of the cranium, and their close approximation along the sutures. If, along with these, we find, that the child is vigorous and active, crying strongly soon after birth, and taking the nipple readily, or even eagerly, and

[1] According to Chaussier the average weight is six pounds and a quarter. Devergie, Méd. Leg. tom. i. p. 504. Of 1601 children born at the full time, the following were the weights:—

3	weighed	2	pounds.	
31	"	3	"	
97	"	4	"	
308	"	5	"	
666	"	6	"	
380	"	7	"	1046
100	"	8	"	
16	"	9	"	
1601				

The average resulting from the above gives six pounds and a very small fraction.

See a very full account of this matter in Beck's Medical Jurisprudence, p. 184 et seq. 5th Edit.

sucking it effectually; that its length measures from nineteen to twenty-one inches,[1] and that the *middle point* of that length *falls at the umbilicus;* we have an assemblage of characters which ought to leave but little doubt of maturity having been attained. The situation of this middle point was first proposed as a test of the age of the fœtus by Chaussier, and his observations have been since confirmed by several others.[2] From the trials I have made of this test, I attach considerable value to it.

It should be recollected, also, that there are certain women to whom it is peculiar, always to have the time of delivery anticipated by two or three weeks, so that they never go beyond the end of the thirty-seventh or thirty-eighth week, for several pregnancies in succession. The writer was once engaged to attend a lady in her fifth confinement, who told him, a month before-hand, that from particular circumstances, she knew her time would be up about the 23d of the month, but that she expected her labour to occur about the 9th, as she had, on the two former occasions, anticipated by two weeks; she became in labour on the night of the 10th, and was delivered on the 11th, La Motte[3] mentions two women who always brought forth at the end of seven months; and the same thing happened to the daughters of one of them. Van Swieten[4] takes notice of a similar circumstance; as does, also, Foderé.[5] A member of the writer's family never passed the end of eight months in three successive pregnancies; but, such cases cannot be looked on as instances of gestation *completed*, but of premature labour from some infirmity of the system, or indisposition in the uterus to enlarge beyond a certain size; nor is it contended, or asserted by these writers, that the children had acquired their full growth: in the instances occurring under my own observation, they certainly had not.

3. *Protracted Gestation.*—The possibility of an extension of the ordinary period of gestation has been, for a very long time, and still continues, a question of very warm debate; some maintaining, that the time is fixed and admits of no variation; while others, who agree as to there being a certain period most frequently observed, believe, that it is not exempt from variety, and may be prolonged. In this view of the subject I entirely coincide; and indeed cannot imagine why gestation should be the only process connected with reproduction, for which, a total exemption from any variation in its period should be claimed. The periods of menstruation are, in general, very regular; but who is there who does not know, that as there are, on the one hand, women, in whom the return of

[1] Rœderer concludes from his examinations, that the average length of a male at the full time, is twenty inches and a third; while that of a female is nineteen inches and seventeen eighteenths.

[2] Capuron, p. 172. Hutchinson, pp. 6. 14. Foderé, vol. ii. p. 149. Burns, pp. 114. 118. Metzger, by Ballard, 168. Beck. Edit. 5, p. 180 et seq.

[3] Liv. i. chap. 28.

[4] Comment. vol. xiv. pp. 6, 7.

[5] Méd. Lég. vol. ii. p. 128.

that discharge is anticipated by several days, so there are, also, many in whom the return is postponed an equal length of time, without the slightest appreciable derangement of their health ?[1] Again, menstruation and the power of reproduction in the female, very generally, indeed almost universally, cease, in these countries, about the forty-fifth year; yet, occasionally instances are met with, in which both are prolonged ten or fifteen years beyond that time of life; and a similar variety is observable in the period of the first establishment of those functions in the system; within the last few weeks, I was consulted on the case of a young lady who completed her eleventh year in April, 1836, and has menstruated regularly since October, having also the mammary development, and other characteristics of womanhood quite perfect, see p. 109; while on the other hand, I have at the time of writing these observations, another patient under my care, in consequence of her having arrived at the age of twenty without menstruating, but in other respects she is perfectly healthy.

The abbreviation and expansion of the cervix uteri, bear in general a very uniform proportion to the period of pregnancy, and the entire obliteration of that part is usually coincident with the completion of gestation, and the establishment of labour; but, we have already seen that while in some instances, there is found at the commencement of labour, at the full time, as much of the cervix remaining unaltered, as might be expected in the seventh or eighth month; at other times, the projection of this part is effaced, and the os uteri considerably dilated several days, or even weeks before the accession of labour: see pp. 40, 41.

It is a law of nature very constantly observed, that dentition should commence a few months after birth, and that some of the teeth of children should show themselves within the first year at farthest, and instances where the cutting of the first teeth is deferred to the end of a year are unusual; yet, in the case of one of the writer's children, the first tooth did not appear until the child had reached the twenty-first month of her age, she being at the time, and previously in perfect health, while both children of a patient of his have had two of the lower incisors appear within four days after birth.

If we turn our attention to brutes, the conditions of whose gestation so closely coincide with those of the human female, and who are, at the same time, so much less exposed to the influence of causes likely to affect it, we cannot for a moment doubt the fact, that there is a great inequality in the term of gestation in different individuals of the same species. The experiments and observations of Tessier, which were undertaken at the instigation of Condorcet, and continued through a period of forty years, with a very unusual degree of precaution against error or inaccuracy, contain

[1] For a case in which the regular menstrual period was five weeks see Burn's Principles of Midwifery, Edit. 7, p. 168.

facts and information more than sufficient, as appears to me, to satisfy any one on this point with regard to the lower animals.

The facts collected by Tessier[1] were the results of observations on so large a number of animals as 2136, besides those on incubation: viz., 577 cows, 447 mares, 161 rabits, 25 sows, 912 sheep, 2 asses, 8 buffaloes, 4 bitches.

Of the 577 cows, whose period of gestation is the same as that of the human female,

21	calved	from the	240th	day to the	270th
213	"		270	"	280
321	"		280	"	297
6	calved	on the	298	day	
4	"		299	"	
10	calved	from the	300	day to	321st
2	omitted.				
577					

The variation between the shortest and the longest gestation is thus 81 days, and the greatest extension amounts to 41 days beyond 280, the natural period.

Of the 447 mares whose natural period of gestation is 11 months, or about 335 days,[2]

51	foaled	from the	290th	day to the	329th
96	"		329	"	335
258	"		335	"	359
35	"		359	"	377
7	"		377	"	419
447					

the difference between the extremes being 129 days, and the greatest protraction 84 days.

Of 912 sheep whose natural period of gestation is five months, or about 151 days,

282	yeaned	from the	146th	day to the	150th
534	"		150	"	153d
84	"		153d	"	155th
7	yeaned	on the	156th	day	
5	"		157	"	
912					

The greatest variation here is 11 days, and the extreme protraction 6 days.

Of 161 rabbits, whose natural period of gestation is 1 month, or about 30 days,

[1] Mémoires de l'Acad. Royale des Sciences, Année 1817, tom. ii. p. 1.

[2] Tessier allows only 330 days, considering each month as consisting only of 30 days, which is not sufficient: 335 being, as nearly as possible, the number of days in eleven calendar months.

15	littered	before the	30th	day
82	"	between the 30	and	31st
39	"	"	31st "	32d
25	"	from the	32d to the	35th
161				

the difference between the extremes being 8 days; 2 having littered on the 27th day: and the greatest protraction was 5 days.

With regard to incubation, he found that there was not unfrequently a difference of five days between the extremes in the same clutch; and in the case of the eggs of the common hen, some of the chicks came out 3 days after the ordinary period of 21 days;[1] an excess in the period amounting to one seventh of the whole, and greater than that which facts appear to show may be *reasonably* contended for as affecting the period of human gestation.

The writer has made several enquires on this subject, with regard to cows and mares, and has invariably received the same answer from persons well qualified to judge, viz. that it was a common occurrence for the cow to go two, three, or four weeks beyond nine calendar months,[2] and that with regard to mares, some went eleven months, and some twelve. Tessier ascertained, beyond a doubt, contrary to the generally received opinion on the subject, that the protraction of gestation was not influenced by the age, constitution, or food of the animal.

There is a very curious fact mentioned by the late Sir Everard Home, which, if strictly correct, would go a great length in strengthening the argument from analogy. He says that, "where the female of one species of animals breeds from the male of another, the utero-gestation of which species is different in its period, there appears to be no approximation in the time, in which the hybrid is brought forth; but the longest term of the two is the time of such utero-gestation. Thus the mare covered by the ass goes eleven months, her usual period; and the ass covered by the horse goes *eleven months*, although *ten is her usual period*."[3]

But if we relinquish the less certain support of analogy, and resort to facts alone, as observed by ourselves, or others worthy of belief, I am quite satisfied that we are in possession of more than enough to prove the point; and, let it not be forgotten, that the combined testimony of all who have maintained the unvarying fixedness of the natural term, merely because they had known no instance to the contrary, (and they could have no other grounds for their belief,) is after all, only negative evidence, and must fall before a single well-established instance, in which that term was exceeded.

Before proceeding, however, to a detail of facts, I propose to

[1] Op. jam citat. pp. 34–5. Willer observed an excess of four days, Journ. de Méd. 1776, p. 35.

[2] See also Dr. Hamilton's Pract. Obs. part i. pp. 177–8.

[3] Philos. trans. 1822.

notice one or two subjects of consideration, which, as it appears to me, ought to have some weight in the determination of this question.

In the first place, then, it is proved by the experiments of De Graaf, Mr. Cruikshank, M. Saumarez, and others, that impregnation of the ovum does not take place immediately on coition, but that an uncertain interval of time elapses between the act of intercourse and the communication of the vivifying influence to the germ in the ovary; and it is probable, almost to certainty, that a variety of physical and, perhaps moral causes, also, may interfere with the propagation of the required influence, some of which may accelerate, while others may retard it.

Again, even if we suppose the period required for the complete maturation of the ovum in utero, to be invariably fixed, another circumstance connected with it must be taken into account, as likely to affect materially the question under consideration: namely, the time occupied in different instances, in the transfer of the ovum from its seat in the ovary, along the Fallopian tube into the cavity of the uterus; for, when we come to reflect on the successive steps of that process, we find that there is not one of them free from a liability to be interrupted, or retarded in permitting, or assisting the transmission of the germ. Thus, the ovulum may lie at a greater than usual depth in the substance of the ovary, which may, also, have had its texture thickened and indurated by the effect of previous inflammation, or the same change may have taken place in the proper coat of that body, or in its peritoneal investment, which will then, still further, delay the escape of the ovum, by resisting the natural tendency to burst under the increasing distension, and by rendering a still longer time necessary for the accomplishment of the requisite absorption: see pp. 146, 147.

Again, the same morbid alteration, thus affecting the ovary, constantly produces changes in the condition of the tube, which, by having formed adhesions with the ovary, or with other parts in its course to the uterus, or by having its natural diameter contracted, may be incapable of transmitting the ovum, without considerable delay: such causes having been found sufficient to arrest its passage altogether, and produce death by causing extra-uterine pregnancy.[1]

The weight of authority is altogether on the side of those who believe in the occasional protraction of gestation; in favour of which, we find the following have recorded their opinions: Buffon, Burns, Capuron, Denman,[2] Desormeaux, Dewees, Foderé, Gardien, Haller, Hamilton, Harvey, W. Hunter, La Motte, Lebas, Leroy, Levret, Mauriceau, Merriman, Murat, Petit, Richerand, Roussel,

[1] See cases by Dr. Gordon Jackson in Dublin Med. Journ. vol. ii. p. 196, and by Dr. Armour in Glasgow Med. Journ. vol. iii. p. 158.

[2] I think myself justified in adding the name of Denman, on the strength of the following passage in his Introduction to Midwifery, p. 254, Edit. 5. "At the expiration of forty weeks, the process of labour commenceth, unless it be hastened, or *retarded* by some particular circumstance."

Smellie, Velpeau, and Zacchias,[1] together with many others, of less, though by no means inconsiderable authority. Many of these have in confirmation of their opinions, related the cases on which their conviction was grounded, and which, of course, had fully satisfied their minds; and I cannot believe it possible, that all of these writers could have been mistaken in a mere matter of fact or observation, and that none of the cases which they have put on record were really instances of gestation prolonged beyond forty weeks. At the same time, I must add, that the cases which appear to me to carry with them the fullest demonstration of their truth, are those in which the ordinary term was not exceeded by more than three or four weeks. Some of those which appear the most satisfactory I shall now notice as briefly as possible.

Dr. Blundell, in his evidence before the house of lords on the Gardner peerage case, declared that he knew positively one case, in which conception must have taken place on the 9th of November, and delivery did not occur till the 23d of August following, making an interval of 287 days, or one week beyond the usual time. On the same occasion Dr. Merriman deposed that he had known cases to be extended to 285 days; in two or three instances to 296; in one to 303; and in one to 309 days.

Wm. Hunter, in answer to a query on this subject, said, "The usual period is nine calendar months; but there is very commonly *a difference of one, two, or three weeks.* I have *known* a woman bear a living child in a perfectly natural way, *fourteen days* later than nine calendar months, and *believe* two women to have been delivered of a child alive, in a natural way, above ten calendar months from the hour of conception."

The late celebrated Professor Desormeaux says, "Observations, well attested, prove that the term may be prolonged beyond the usual period; and he adduces the following case, occurring within his own observation in a patient whom he attended:—"A lady, the mother of three children, became deranged after a severe fever. Her physician thought that pregnancy might have a beneficial effect on the mental disease, and permitted her husband to visit her; but with this restriction, that there should be an interval of *three months between each visit*, in order that, if conception took place, the risk of abortion from further intercourse might be avoided. The physician and attendants made an exact note of the time when the husband's visit took place. As soon as symptoms of pregnancy began to appear, the visits were discontinued. The lady was closely watched all the time, by her female attendants. She was delivered at the end of nine calendar months and a fortnight, and Desormeaux attended her." Concerning this case, Raige-Delorme, who is rather sceptical about retarded gestation, declares, that it is a fact possessing "the elements of a perfect demonstration," in favour of a protraction so far.[2]

[1] For the references to the works of these writers, see p. 190.
[2] Dict. de Méd. tom. x. p. 462.

Velpeau, in addition to eight cases formerly published, has recently recorded another, in which, at the fourth month, he distinctly felt both the active and passive movements of the child: the symptoms of labour which occurred at the end of the ninth month were suspended, and did not return for thirty days.[1]

Dr. Dewees, the professor of midwifery at Philadelphia, relates, that the husband of a lady, who was obliged to absent himself for many months, in consequence of the embarrassment of his affairs, returned, however, one night clandestinely, and his visit was known only to his wife, her mother, and Dr. D. The consequence of this visit was the impregnation of his wife; and she was delivered of a healthy child in nine months and thirteen days after this nocturnal visit;[2] and he adds, that he has had "every evidence, short of absolute proof, that gestation has been prolonged to ten calender months, as an habitual arrangement, in at least, four females whom he attended; calculating from ten or twelve days after the cessation of the last menstrual period, and from the time of quickening, which was fixed at four months. Besides, a case has occurred within a short time in this city, in which the lady was not delivered for full ten months after her husband's departure for Europe; yet so well, and so justly too, did this lady stand in public estimation, that there did not attach the slightest suspicion of a sinister cause."

Dr. Hamilton, the present distinguished professor of midwifery in Edinburgh, states "his solemn conviction, that he has met with at least twelve cases, in the course of practice, where there could not be the shadow of doubt of the protraction of human pregnancy beyond the ordinary period." In one case the lady exceeded the tenth revolution (of the menstrual period) by twelve days; another lady exceeded it by sixteen days, and another by twenty-four days. this latter patient menstruated on the 1st of August, and was not delivered till the 28th of June. Another lady, the mother of a large family, exceeded her period by above a fortnight, on the 4th of March, when her husband went to England, where he resided for some months; the symptoms of pregnancy had been distinctly perceived before her husband's departure, but she was not delivered till the 6th of December.

Mr. Burns says, "On the other hand, it is equally certain, that some causes which we cannot explain or discover, *have the power of retarding the process*, the woman carrying the child longer than nine months; and the child when born being not larger than the average size. How long it is possible for labour to be delayed beyond the usual time cannot be easily ascertained." "The longest term I have met with is ten calendar months and ten days, dated from the last menstruation. In the case of one lady who went this length, her regular menstrual period was five weeks, and in her other

[1] Traité d'Accouchemens, tom. i. p. 383.

[2] An interesting fact connected with this case has been already noticed, p. 32.

pregnancies she was confined exactly two days before the expiration of ten calendar months after menstruation."

Dr. Campbell, after stating that he had devoted his attention to this subject for several years, says, that of four cases *where the evidence was clear*, in one, pregnancy was protracted eleven days; in a second thirteen; and in a third, eighteen days beyond nine calendar months. The fourth was one in which the fœtus was expelled in a putrid state; when its life became extinct, the gestation wanted fourteen days of nine calendar months; but labour did not come on for twenty-four days after the motions of the child had ceased.

In the case of Anderton against Whitaker, tried at Lancaster a few years since, intercourse between the parties was sworn to have occurred on the 8th of January, and never at any other time, and labour did not take place until the 18th of October, being the 284th day from the time of conception.

La Motte relates the following instances of prolonged gestation, which appear unexceptionable. A lady, residing fifteen leagues from Paris, requested him to remain at her house from the 12th June, 1699, as she expected her labour to occur between the 18th and 20th of that month: because her husband had returned home from a long voyage on the 18th of the preceding September, and was taken ill three days after his arrival; but her labour did not occur till the 30th, that is, at least 283 days after conception.

He attended another lady whose husband left her on the 25th January, 1702, and she was delivered on the 18th November, that is, after a term of 297 days, at least, and probably of greater length, as La Motte mentions that the patient considered herself pregnant at the time of her husband's departure, having begun at that time to experience some of the symptoms of pregnancy.

The following case occurring within my own observation, I consider as perfectly decisive. In January, 1835, in consultation with Dr. Beatty, I saw a patient, who, in reply to a question as to her having come to her full time, said that she had long passed it; and, on being questioned as to why she thought so, she stated, that she had seen her husband but once during the previous year; that he had visited her on the 18th March, and was obliged to leave her the next day; soon afterwards, she began to experience the symptoms of pregnancy, but her labour did not commence till the 4th of January.[1] The period of gestation, in this case, must have amounted to at least 291 days. I should add, that I feel the more fully persuaded of the accuracy and truth of this woman's statement from having subsequently heard from Dr. Churchill, that she had consulted him in the latter part of December, being, she said, uneasy as to her condition, and assigning as her reason for being so, her having so long passed the time at which she thought she must of necessity have been delivered.

[1] See Dublin Medical Journal for September, 1835, p. 78.

Another case, also, which occurred in the writer's practice, closely coinciding with those described by Mr. Burns, appears to be an instance of gestation prolonged. The circumstances were these: A lady who had suffered from puerperal mania after her previous confinement in 1830, from which, however, she perfectly recovered, conceived again in the month of July, 1831, and miscarried in October, being then in the third month of pregnancy. She menstruated regularly in November and December, and, for the last time, in the first week of January, 1832. The writer did not see her again till the 24th of March, at which time she considered herself as in the third month of pregnancy; and as she was suffering pains, was fearful lest abortion was about to happen at the same period as before. It did not however occur, and she went on safely. At this date the symptoms of pregnancy were well marked; the areolæ were very distinct on the breasts, and the increased size of the abdomen was obvious to the eye, and corresponded to the supposed period of pregnancy. Quickening occurred on the 10th of May, and all parties looked forward to the occurrence of labour about the middle of October, which, however, did not happen until the 14th of November.

Now, in this case, if we suppose conception to have taken place very soon after the last menstrual discharge, as it most frequently does, we have an interval of exactly forty-four weeks or 308 days, a period of time exceeding the usual one by four weeks or twenty-eight days, nearly one whole lunar month. And, on the other hand, if we suppose conception to have taken place on the very last day of the interval between the two menstrual periods, we should still have an instance of gestation occupying forty-one weeks and two or three days. And lastly, if we assume the middle period of the interval as the time of conception, we should have an interval of forty-two weeks and a half; and certainly, when I saw her in March, she had all the appearance of a woman in the third month of pregnancy. It is also to be recollected that quickening occurred on the 10th of May, just sixteen weeks after the probable period of conception, or eighteen weeks from the time of the last menstrual period, and nearly twenty-seven weeks before labour. I may add, that this was the third instance of the same kind which has come under my own observation.

I cannot close this part of the subject without directing the reader's attention to the cases related by Dulignac,[1] Foderé,[2] and Dr. Granville,[3] which, occurring as they did in their own wives, and under circumstances where there could be no possible motive to deceive, and where every successive period of the gestation was carefully observed by persons so eminently qualified to form a correct opinion, are entitled to great attention.

It appears to me that several of the foregoing cases ought to carry

[1] In the Causes Célèbres.
[2] Médecine Légale, vol. ii. ch. 8, p. 195.
[3] In his evidence before the House of Lords.

conviction to any unprejudiced mind; and it is to be recollected, that if any one of them be true it establishes the fact, in defiance of all objections made by those who deny it, because they have not met with any case of it themselves, or because they conceive it to be inconsistent with the usual or established order of nature.[1] "We ought to admit it," says Foderé, "not merely because it is possible, but because we have abundant proof that it has happened."

"On peut les en croire," says Roussel,[2] "non point parcequ'ils l'ont dit, mais parcequ'un fait qui ne repugne point à l'esprit, et qui ne choque point la justesse et l'ordre naturel des idées, avancé par des hommes instruits, doit être cru, si on n'a pas une preuve complete et demonstrative du contraire."

In the next place, we find that the laws of different countries have been framed from a persuasion on the part of the legislators that a protraction of the ordinary term of gestation might occur. Thus the law of France[3] provides that the legitimacy of a child born within 300 days after the death or departure of the husband shall not be questioned; and the child born after more than 300 days is not declared a bastard, but its legitimacy may be contested.

The Prussian civil code declares, that an infant born 302 days after the death of the husband shall be considered legitimate.[4]

The Scotch law is very precise:—"To fix bastardy on a child, the husband's absence must continue till within six months of the birth;[5] and a child born after the tenth month is accounted a bastard." Our English law fixes no precise limit,[6] but the decisions that have been made, from time to time, are in favour of the possibility of protracted gestation.

The first satisfactory precedent, of which I am aware, is that of *M.* 17 *Jac. B. R. Alsop and Stacey.* Andrews dies of the plague; his wife, who was a lewd woman, is delivered of a child *forty weeks* and *ten days* after the death of the husband; yet the child was adjudged legitimate, and heir to Andrews; for *partus protest protrahi* ten days *ex accidente.*

In the case of Forster and Cooke,[7] a legatee filed a bill to have his legacy, and in order to define the person on whom he had claims it was necessary to establish a will. But as it was requisite in chancery, for establishing a will, to have the heir-at-law before the court, it was a question to whom that title properly belonged, and so the period of gestation came to be considered. An issue was

[1] Ignorat naturæ potentiam qui illi non putat licere, aliquando, nisi quod sæpius facit.—*Seneca*, Nat. Quæst. lib. vii. cap. xxvii.

[2] Système de la Femme, p. 175.

[3] Code Civile, Art. 314, 315. Vide Divergie, Méd. Lég. tom. i. p. 460.

[4] Metzger, pp. 427–429.

[5] Erskine's Institutes of the Laws of Scotland.

[6] "And so it is of all children born so long after the death of the husband that by the *usual course of gestation* they could not be begotten by him; but this being *a matter of some uncertainty*, the law is not exact as to a few days."—Blackstone.

[7] Brown's Chancery Cases, v. iii. 349.

directed to try, whether a child born forty-three weeks after the husband's death was legitimate; and it appears that the jury found this posthumous child to be the heir-at-law.

With the exception of the last mentioned case, the question of protracted gestation seems to have escaped legal enquiry for more than two hundred years before the contest for the Gardner peerage, which recently excited so much interest in England and gave rise to a very lengthened investigation.

The following were the facts of this remarkable case. In the year 1796, Captain Gardner (who afterwards became Lord Gardner) married Miss Adderley. They lived together as man and wife until the 30th of January, 1802, on which day, Mrs. Gardner took leave of her husband on board ship, and shortly afterwards he sailed to the West Indies; from whence he returned to England on the 11th of July following. For some time before, and, also, during the whole time of Captain Gardner's absence, Mrs. Gardner carried on an adulterous intercourse. Upon Captain Gardner's return to England he found his wife with child; and she, hoping to be delivered within the proper time, made no secret of her pregnancy. When, however, she ascertained, that the child could not be brought forth in time to be supposed to be Captain Gardner's, she declared that she had a dropsy, and informed his family that such was the case; and not only Captain Gardner, but the whole of his family considered her as labouring under that complaint. On the 8th of December, Mrs. Gardner was delivered in secret, in the presence of three persons only. The child was immediately removed to a lodging, and was afterwards christened by the name of the paramour, who brought it up, and in all respects treated it as his son. The birth of this child was carefully and successfully *concealed* from Captain Gardner, who did not even discover his wife's adultery till the year 1803. He subsequently obtained a divorce, and married again. He succeeded to the title in 1808, and died in 1815, leaving a son by his second marriage, who in the year 1824 presented his petition to the king, praying to be entered on the parliament roll as a minor peer. This was opposed by the young man, Henry Fenton Jadis, alias Gardner, who claimed to be eldest son of Lord Gardner, being born 311 days, or ten calendar months and nine days after Captain Gardner's departure from the country.

The petitions were referred to the committee of privileges, who called before them seventeen of the most eminent practitioners in midwifery, in London and elsewhere, and examined them as to the possibility of such a protraction of the term of gestation as was here contended for. *Five* of these gentlemen maintained, that the limits of gestation were fixed, and consequently denied the possibility of such a protraction. The other *twelve* supported the affirmative side of the question, and some of them adduced cases very strongly in favour of their views, particularly Drs. Granville, Conquest, and Blundell. Without wishing to enter into any criticism of the medical evidence, I cannot help remarking, that the gentlemen who

maintained the invariable fixedness of the period of gestation, all assigned different quantities of time as that ordained by nature, and some of them who asserted forty weeks to be the ultimatum, admitted that it might be *exceeded* by a *few* days; now, I would ask, if the principle of extension be admitted, how, or by whom can the limits be assigned ?[1]

The house of lords decided in favour of the petitioner and against the counter-claimant, Henry Fenton Jadis, *but not because of the time of his birth;* for Lord Eldon, who was their chancellor, in giving his judgment, says, "It is not by any means my intention to do more than express my conviction that the petitioner has made out his claim,—that there are a great many more questions which arise in a case of this nature, almost the whole of which were considered in the Banbury peerage, but without entering into a detail of these questiions, and *without entering into a discussion as to the ultimum tempus pariendi*, I am perfectly satisfied, upon the whole evidence, that the case has been made out."[2]

It was the *adultery* of the mother, and the *concealment of the birth from the husband*, which justified the house in refusing the petition of the counter-claimant. If the only point in the case had been, that he was not the son of Lord Gardner because it was *impossible* his mother could have gone forty-four weeks with him, the house of lords could not have declared him illegitimate; and when Lord Eldon said he should give his opinion "*without entering into the question of the ultimum tempus*," it is perfectly clear he did so for the purpose of guarding against the decision being ever taken as a precedent, that a gestation protracted four weeks beyond the usual time should be a ground for bastardising a child.

In the case of Radwell v. Radwell, 18 E. 1, the widow was delivered forty weeks and eleven days after the death of her husband, and the court pronounced against the legitimacy of the child; but, in this case it was proved, that the husband could not have cohabited with his wife for a month before his death, during which time he languished of a fever; and after his decease his wife *swore that she was not with child.*

"The precedents, therefore," says Mr. Hargrave, in his notes on

[1] Dr. Beck in a note to his chapter on Legitimacy, Ed. 5. p. 331, says he is "peculiarly happy to find that Dr. A. T. Thomson is a firm believer in a uniform period of gestation;" but to me it appears that in so saying, he does not correctly represent the sentiments of Dr. Thomson, whose opinion I find thus expressed in a lecture of his, recently published in the Lancet for December 3, 1836. "I am not so attached," he says, "to my own opinion, as to deny that a difference of one, or even two weeks may occur; but beyond that the case certainly becomes questionable," p. 347. And again, he adds, "My opinion is decidedly against the possibility of the protraction of uterine gestation for many days over forty weeks from the time of conception," p. 248. Here is, as appears to me, a distinct admission, that gestation may be prolonged, and that Dr. T. would not refuse his assent to a protraction of even two weeks.

[2] Le Marchant's Report of the Proceedings, &c. p. 335.

the legal time for human birth, "so far from corroborating Lord Coke's limitation of the *ultimum tempus pariendi*, do, upon the whole, rather tend to show, that it hath been the practice in our courts, to consider forty weeks, merely as the more usual time, and consequently not to decline exercising a discretion of allowing a longer space, where the opinion of physicians or the circumstances of the case have so required."[1]

In summing up my observations on this important subject, I beg to observe that I am very far from wishing to maintain a frequent deviation from the assigned, or ordinary period of gestation in the human female. I am quite ready to confess, that many of the arguments brought forward in support of it have been vague and nugatory in the extreme, and several of the cases adduced, totally unworthy of credit. I believe it to be observed with great but not invariable regularity, and having had an opportunity of observing very many cases in which mature delivery took place at, or about the termination of the fortieth week, I have, after several years of attentive observation, only met with two or three cases, within my own knowledge, in which the protraction appeared to be satifactorily proved; and, in these, the extension did not go beyond the fourth week, at farthest; few, however, as these instances have been, I hold their occurrence to be decisive of the fact. I have already stated, that calculations founded on the suppression of the menses alone are not sufficiently satisfactory, and have therefore confined my selection of the cases adduced, as much as possible, to those, in which, from peculiar circumstances, the time of conception was supposed to be exactly known. I wish also to observe, that conclusions drawn from the size of the child ought to have very little weight on either side of this question; for, although, in some of the cases of protracted gestation, the child was of enormous size, it by no means follows that it should be so in all such instances; and, in point of fact, we find it expressly mentioned in some of them, that the child was smaller than usual, as happened in one of Dr. Hamilton's cases;[2] and Foderé[3] says, that in three instances in which gestation was evidently prolonged, the children were undersized and ill thriven; while, on the other hand, the largest children are often produced, where no extension of the term could have taken place. In Tessier's observations, it is particularly noticed, especially with regard to cows and mares, that there was no fixed relation observable between the size, strength, or sex of the offspring, and the protraction or abbreviation of the period of gestation; and of this he gives several forcible instances.[4]

In conclusion, I beg to observe, that I should be very sorry to see,

[1] From Hargrave's Jurisconsult Exercitations, quoted in Paris and Fonblanque, vol. iii. p. 218.

[2] Practical Observations, part i. p. 179.

[3] Dict. des Sci. Méd. tom. xxxv. p. 167.

[4] Mém. de l'Acad. Roy. des Sci. 1817, p. 18.

or to advocate, the indiscriminate admission of the protraction of gestation, as a matter of course, or even of common occurrence; from such an admission I feel assured great evils might, and would arise. I shall, therefore, avail myself of the sentiments of the reviewer of the evidence on the Gardner peerage case, as perfectly coinciding with my own, when he observes,[1] that "it does not need a detail of cases to convince every man, that in by far the greater number of cases, the ordinary term of pregnancy is adhered to. Consequently, if the possibility, or probability of its being prolonged is conceded, it does not follow, that in actual practice judgment should go upon *the general probability* of the event, as a fact in physiology. On the contrary, since, in the abstract, more disorder would be occasioned in society by admitting the *general principle*, as adequate to decide *special cases*, than by rejecting it altogether, we conceive that, if a definite period is not to be fixed by law, proof of the special probability, or improbability should be required in each case."

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[1] Edinb. Med. and Surg. Journ. vol. xxvii. p. 114.

ON THE SIGNS OF DELIVERY.

An investigation into the proofs of delivery, whether undertaken with reference to circumstances of a social, professional, or legal nature, although not so frequently required, will be found no less important in its relations to society, nor less difficult in its details, than the examination of the proofs of pregnancy ; a very clear and accurate knowledge of which latter is indispensably necessary, to enable us to arrive at a satisfactory conclusion, when engaged in such an enquiry as that before us. It may, and indeed frequently does happen, that a woman with an enlarged belly, arising from some purely accidental or morbid cause, becomes an object of suspicion ; and, afterwards, the sudden reduction of her size may, however unjustly, affix upon her the imputation of clandestine delivery, at least ; and although such charge may never be made the subject of a legal, or criminal investigation, its influences would be alike unjustly predjudicial to the character of the individual, and injurious to the moral interests of society. The writer once saw such an instance, in the case of a woman who was separated from her husband, and became affected with what was considered ovarian dropsy, which enlarged the abdomen to the size of six months' pregnancy, some of the other symptoms of which state were also present. After an attack of inflammation, during which, it is to be presumed, the parietes of the tumour formed an adhesion with the upper part of the vagina, there took place, suddenly, a discharge of gelatinous fluid from that cavity, and the abdomen completety subsided in the course of a day, and the previously entertained suspicion appeared to be confirmed beyond a doubt ; but, on examination, the woman had not about her one of the signs of delivery ; yet, had not the case been at once investigated, loss of reputation, at the least, would have inevitably, though most undeservedly, followed. In a very interesting case related by Foderé, the life of an innocent woman was very near falling a sacrifice to the law, under circumstances somewhat similar. A young woman had her menses suddenly suppressed in consequence of a fright, and sought every aid to restore them, without effect; she was at length married with a view to induce their return, which succeeded after a time, and she discharged a great quantity of fetid matters. This fact was proved by the husband and the medical attendants. It so happened, just at this period, that two children were found exposed and destroyed by cold ; suspicion fell on this young woman, because she was known to have had an enlarged abdomen, which had very suddenly subsided. The judges of the district ordered her to be arrested and

examined by a physician, a surgeon, and two midwives, who reported that they had discovered marks of delivery. In consequence of this, the unfortunate woman was condemned to death, for concealing her pregnancy, and making away with her children. An appeal, however, was made to parliament against this sentence; and, in consequence of two consultations, held by several physicians and surgeons of the greatest eminence, she was acquitted.[1]

In the celebrated case of the Demoiselle Famin, published at Berlin and Paris by Valentin, in 1768, a charge of pregnancy and infanticide was erroneously instituted, in consequence of an extreme case of ovarian dropsy.

Delivery may be *concealed*, with the hope of avoiding shame, or still more criminally, with the intention of destroying the offspring; and where infanticide is charged, the law requires proof of delivery, and the finding of the child. Or, again, delivery may be *feigned* for the purpose of obtaining marriage with a paramour, to gratify the wishes of a husband, or to wrest property from the lawful heir. Perhaps the most singular case of the kind on record is that related by Capuron,[2] in which, a young woman, with a view to obtaining marriage with her lover, feigned pregnancy and then delivery, and, so far, succeeded completely in her attempt; but, after some time, being called on to produce the child, and refusing to do so, she was accused of infanticide, and brought before the criminal tribunal, where she confessed the fraud which she had practised, and the motives by which she had been actuated; but, she was then called on to prove that she had never been delivered, and an investigation by medical examiners was ordered; the result of which was a report, that they could find no sign of delivery of either recent or ancient date, whereupon she was acquitted and discharged. A similar instance of pretended delivery appeared not long since in a Berlin journal, as having occurred at Sirakovo in the circle of Posen, where a young woman, anxious to fulfil the ardent desire of her husband to have an heir, pretended to have been suddenly and unexpectedly delivered, and stole an infant to support the falsehood: the case was rendered more atrocious, from the real mother having, in consequence of the theft, been subjected to the accusation of infanticide; the fact was, however, happily discovered, and the culprit consigned to the punishment due to her crime.[3] Dr. Male tells us, that a surgeon was called to a pretended labour, and a dead child presented to him, but there was no placenta; he therefore proceeded immediately to examine the woman, when he found the os tincæ in its natural state, nearly closed, and the vagina quite contracted: the fact was, that the woman had never been pregnant, and the dead child was the borrowed offspring of another: it appeared, that she was induced to practise the artifice to appease the wrath of her husband, who frequently reproached her for her sterility. The

[1] Médecine Légale, tom. i. p. 476.
[2] Méd Légale relat. aux accouchemens, p. 110.
[3] See Paris and Fonblanque, vol. i. p. 250.

following case occurred lately under my own observation:—A young woman was admitted into Sir Patrick Dun's Hospital a few months since, affected with anasarca and dropsy in an extreme degree, which she attributed to hardship sustained in her passage from Edinburgh, where, she said, she had been delivered, about seven weeks before, of a child, which only lived two days; the woman sunk rapidly, and died within a few days. In the expectation of obtaining a specimen of the corpus luteum at that interval after delivery, I obtained the uterus and appendages for examination, through the kindness of Dr. Law, when, very much to my surprise, I found, that there was not, in either ovary, the least appearance of corpus luteum; and on extending my examination to the uterus itself I found it presenting, both in form and size, completely the characters of the virgin uterus, with an os uteri so small, that it would not receive more than the head of an ordinary probe, and its margins perfectly smooth, and without the least appearance of notch or depression; which circumstances, conjoined with the unaltered state of the breasts, induced me to give it as my opinion, that it had never contained a full-grown child, and certainly not within the period stated by the woman. As this excited some curiosity about the case, an enquiry was made of her husband and other friends, who were all of opinion, that she had never been pregnant; but it appeared that having become dropsical before she went to Scotland, she mistook her condition for pregnancy, and, not wishing to acknowledge her mistake, or dreading ridicule, she had persisted in her account, after her return.

With reference to whatever object this enquiry may be entered on, it is very important to consider, *in limine*, what are the limits of time, within which, the signs of ordinary delivery can be detected, and, also, whether a woman who has given birth to a child, necessarily retains any permanent mark or symptom, by which her delivery can be ascertained after an interval of many months, or years. With regard to the first of these questions, it must be recollected, that there is a remarkable diversity in the effects produced by parturition on the system of different individuals, as well as in the merely physical changes made in the condition of the parts more immediately concerned in that process: a difference arising, partly, from the greater strength, or tonicity in the constitution of particular persons, and the consequent rapidity with which the parts restore themselves to their original state; and, partly, depending on the period of pregnancy at which delivery took place, and the size of the ovum, or fœtus which has been expelled. As a general rule, however, it is agreed on, by all who have directed their attention carefully to the subject, that the time, within which we may expect satisfactory information has certainly expired, when ten days have elapsed from the time of delivery; but, we are not to assume this extension of the time suited for the enquiry, as implying, that we may safely postpone our examination so long, or that up to the end of that period we can obtain all the evidence we require: such is

by no means the fact, and experience will soon convince us, that in general, within a week, the condition of a healthy woman who has not sustained any accident in delivery is so restored, as to render the result of any such investigation a matter of much uncertainty; many of the most marked alterations in the parts of generation disappearing, "so as to leave no trace remaining eight days after delivery."[1] Such, also, was the opinion of Bohn and Albert, in conjunction with Antoine Petite and Louis, when they met in conference on the case of a woman of Mantes, who was accused of infanticide, and whom they pronounced innocent, on the grounds of her not having been examined, as to the fact of her delivery, until after the expiration of a month. "Dans quelques cas," says Devergie,[2] "l'accouchement ne laisse aucune trace de son passage, après le sixième jour revolu."

I was once called on to examine a woman, five days after delivery, at the full time, and was particularly struck with the degree in which the parts had restored themselves to their natural condition, especially the os and cervix uteri, which hardly differed from their natural unimpregnated form and size. It should, however, be remarked, on the other hand, that occasionally, under peculiar circumstances, the symptoms of a recent delivery may be found very distinct, after a lapse of more than ten days; as, for instance, after a very severe labour, and perhaps the birth of a very large child, by which great contusion, swelling, laceration, or sloughing may have been produced in the soft parts.

If the contents of the uterus have been prematurely expelled, the signs of delivery, at whatever time investigated, will be found indistinct in proportion to the immaturity of the ovum; so that, after abortion at an early period, so little change is made in the condition of the uterus and other parts, and the woman may exhibit, otherwise, so few of the signs of pregnancy, even when examined within a day or two after the occurrence, that it may be found impossible to form any thing approaching to a decided opinion,[3] except by a very careful examination of whatever substances may have been expelled, should that be within our reach; when, if the structures of the ovum be satisfactorily detected, and we have sufficient proof that such body was expelled by the woman, there can no longer be any doubt. In the case of a lady who miscarried, with little or no pain, but with considerable hemorrhage, at the close of the second month, in twenty four hours afterwards, I found the os and cervix uteri almost completely restored to their natural state; the vagina and external parts hardly, if at all, dilated, and very little

[1] Baudelocque, vol. i. p. 115. See also Foderé, tom. ii. p. 17. Marc, Dict. de Méd. tom. i. p. 228.

[2] Médecine Légale, tom. i. p. 444.

[3] "Avant les deux premiers mois revolus de la grossesse, surtout lorsqu'il ne s'agit pas d'une primipare, l'art ne presente aucun moyen concluant de determiner, par l'examen de la femme, si un avortement a eu lieu."—Marc, Dict. de Méd. vol. iii. p. 193.

relaxed; the breasts exhibited very imperfectly the appearances which accompany pregnancy, the ordinary sympathetic symptoms of which had been almost entirely absent. Now, in such a case as this, it would be utterly impossible to arrive at more than a very ill-established probability, except, by finding the ovum, which in this case was expelled entire and perfect, in which state I have preserved it. As a general rule, we should, in all cases, if possible, see the child, and having carefully examined it and its appendages with the precautions suggested pp. 144, 173, we should consider, whether its development and other conditions correspond, first, with the account given us, and secondly, with the signs observable in the female under examination.

Whether the child produced be really that of the woman may be determined by moral evidence, but to this alone, we will hardly feel justified in trusting, and should endeavour to obtain every other possible species of information. A circumstance which occurred in London in November, 1822, (see Morning Chronicle, Nov. 23d,) offers a good illustration of this. A girl was apprehended for suspected infanticide, and her child carried to a neighbouring workhouse till the inquest should be held upon it. A surgeon, who examined the body two days after delivery, declared, there were no marks of external violence, and, that it was in such a state of putrefaction, as rendered an internal examination useless and unnecessary. The jury were accordingly on the point of returning their verdict, *found dead*, without surveying the body, when the coroner reminded them of this part of their duty. On proceeding to view it, they discovered that the body examined by the surgeon, was that of a child who had died, five or six days before, in the workhouse.

Foderé says, that in consequence of mistakes of a similar kind women who had miscarried at an early period of pregnancy, were declared the mothers of children born at the full time, and actually suffered death in consequence.[1]

As to the second point, or our being able to ascertain, by personal examination, whether a woman has, at any former period, been delivered or not; it is plain, that we may be able to establish the negative of the question from the existence of some physical condition, such as a perfect hymen, which would be incompatable with the birth of a mature child; this would not, however, prove that abortion had not taken place, see p. 135; but such a state of imperfect development, or of imperforation might be discovered, as would preclude altogether the notion of either pregnancy or delivery. But, the question of most practical importance is this,—supposing a woman to have been a mother, does there remain any mark, or sign by which the fact of delivery can, at any future period, be established? The reply to this question, which experience warrants, appears to be, that in a very great majority of cases, we

[1] See Edin. Med. and Surg. Journ. vol. xix. p. 457.

should be totally unable to discover any such certain indication of a former delivery; for although, in some instances there are to be found, appearances which point strongly to a probability of such an occurrence having taken place, they are very seldom, indeed, such as ought to be considered decisive of the question; while in other cases, where parturition has occurred repeatedly, not one of the signs usually insisted on is found to have continued permanent. I, some time since, examined a patient who had borne five children and nursed three of them, the youngest being then five years old; the breasts were small, but neither flaccid nor pendulous; the nipples short, with not the least shade of brown colour in the areolæ, which exhibited only the delicate rose tint so often observed on that part of the virgin breast; there were neither lines, nor spots of any kind on the abdomen;[1] the os uteri was small and natural; the vagina contracted, and the fourchette perfectly entire. It should be mentioned, that this lady never carried her children beyond the end of the eighth month. But the remarkable case of Aimée Perdriat, related by Foderé,[2] shows very forcibly that the lapse of a few weeks may be sufficient to render impossible the detection of the signs of delivery; the facts were briefly these:—On the 11th of June, early in the morning, Aimée Perdriat left her master's house and went to that of a friend named Rosina, living in the fifth story of the house, begging permission to lie down, as she was unwell with cholic; in about an hour afterwards, a person living in the third story heard an extraordinary noise in the water-pipe, as if a heavy body was falling forcibly through it. Aimée was not visited by any one except Rosina and another young girl, who came to ask if she wanted any thing. About five hours afterwards, Rosina observed blood on the stairs and on the floor of the room, and Aimée remarked, that her menses were flowing very profusely. Suspicion was excited, and on the 17th the privy was opened, when a child, placenta, and two bloody cloths were found. Two surgeons examined the body, and reported that there were no marks of violence present, except, that the umbilical cord was *torn* off; that it was a full-grown child, who, in their opinion, had breathed after birth, and had fallen alive into the place from whence it was taken. Aimée was arrested on suspicion of being the mother of this child, and the suspicion was increased by her refusing to submit to the examination of a midwife, and having absconded from Paris: she was brought back, and on the 15th, 17th, and 27th of July, being more than a month after the supposed delivery, she was examined by Baudelocque, Dubois, Ané, Dupuytren, and Lafarge, who declared that they could not discover any sign indicative of delivery having taken place, at the time in question. In consequence of this, she was acquitted, the judges leaning to the side of mercy; but the circumstances of the case must impress us with a very strong moral coviction of the woman's guilt.

[1] For a similar case see Morgagni, Epist. xxiii. Art. 4.
[2] Médecine Légale, tom. ii. p. 18.

The presence of broken streaks, running in nearly concentric curved lines, of a shining white, or sometimes pearly colour, most numerous on the lower part of the abdomen, and sometimes observed on the nates and upper part of the thighs,[1] like the remains of numerous small cicatrices, the surface of which seems reticulated, or as if the texture of the skin had been frayed, is a sign of acknowledged value. These marks are produced by the giving way of the true skin, under the distension caused by the enlarged uterus, and when once formed, are permanent; but then, we have already seen, that a woman may have been repeatedly delivered without the formation of any such marks; and, on the other hand, we know that any cause capable of stretching the abdominal integuments to the same degree may equally give rise to their production; a remarkable instance of which, the writer once saw in a man labouring under general dropsy, whose abdomen was literally covered with such streaks, and there were also several on the thighs, prepuce, and other parts of the body. Denman says,[2] that the same effect may also be occasioned by extreme corpulence. These marks are sometimes accompanied by a brown line extending from the pubes to the umbilicus, which will be more particularly noticed presently.

It sometimes happens also, especially in young women of a full habit, that when the breasts have been greatly and rapidly enlarged during pregnancy, or after delivery, the skin covering them is, in like manner, injured, and silvery lines are formed which never afterwards disappear. I have already, p. 34, related the particulars of a case in which I discovered, by the presence of the marks, a delivery which had taken place two years before; and subsequently in consultation with the late Surgeon Conolly on a case of doubtful pregnancy, where previous child-bearing was at first resolutely denied, the recognition of these silvery streaks induced me to press the party strongly on the subject, when she confessed she had given birth to a child nineteen months before. It is very important to know, that these streaks may form on the skin of the breast *during pregnancy*, see p. 42, as well as after delivery, for otherwise we might be led into serious error, and conclude, in a case of first pregnancy, where they happened to be developed during gestation, that the woman had been delivered before: but, I have now seen a sufficient number of instances to convince me, that they unquestionably form, in some cases of first pregnancy, so early as the sixth month: so that they cannot be placed absolutely among the signs of a former delivery, as is done by Rœderer, who regards them as the effect of the turgescence of the breast from the secretion of the milk after delivery, and consequently, proofs that the woman "jam partum enixa est,"[3] but they must certainly be re-

[1] Vide Desormeaux, Dict. de Méd. tom. x. p. 388, and Devergie, Médecine Légale, tom. i. p. 443.

[2] Introduction to Midwifery, 5th edit. p. 244.

[3] Elem. Art. Obstet. pp. 38. 40.

garded as the result of pregnancy. I should add, that the abdominal lines also form occasionally as early as the seventh month of gestation, though I believe this to be rare.

It may be satisfactory to enquire here, whether there is any other affection of the mammæ which might give rise to such a condition of their surface. The mere accumulation of fat, I certainly think, would not, and the existence of diseased enlargement would not be likely to give rise to mistake; but there is one fact on this subject which deserves to be borne in recollection, namely, that the application of leeches to the breasts, or other means of exciting mammary irritation, such as sinapisms, as a mode of restoring the menstrual discharge, lately recommended by Dr. Loudon,[1] Dr. Patterson,[2] and others, has been followed, by these organs becoming "swelled to an enormous degree;" and as this swelling takes place very rapidly, it seems reasonable to suppose that it *might* produce a similar disorganisation of the integument; but I have no evidence from experience on the subject; and, as yet, have never seen them except as the result of pregnancy, which, however, they do not always, but only occasionally, accompany or follow. On the whole, we may conclude, that if, on investigation, it can be satisfactorily ascertained, that no such morbid or accidental alteration as those above alluded to had ever existed in the situations in which these cracks are perceived, then their presence would establish a presumption in favour of former pregnancy, amounting almost to certainty; and should we happen, under similar circumstances, to find these peculiar marks on the breasts and abdomen at the same time, in a woman not then pregnant, or before the fifth month, the coincidence would afford a concurrent testimony, which ought to leave no room for doubt.

Notice has been already taken, p. 104, of the frequent occurrence of varicose veins in pregnant women; in such cases, as well as in some others, where that affection has not existed, dark purple spots, or vermicular lines form on the limbs of women who have borne several children; but their presence or absence does not, in my opinion, afford us any information on which we could venture to rely, except as a collateral item, to be taken in conjunction with several others; for, although their appearance is peculiar, and I have very often seen them in women who have had families, it is to be recollected, that a woman may have had varicose veins independently of pregnancy, and, as far as I know, we have not sufficient evidence from experience to warrant us in believing that such marks may not be found independently altogether of either pregnancy or varicose veins; and, on the other hand, the purple marks observable after varicose veins are, in many instances, not discernable, when a considerable time has elapsed after delivery.[3] When

[1] Edinburgh Med. and Surg. Journ. vol. xxxviii. p. 61.
[2] Dublin Journal of Medical Science, vol. iv. p. 193.
[3] Rœderer, speaking of the signs of delivery, enumerates as one, "Mecalæ

the os uteri of a woman who has borne children is examined, its labia are, in general, found jagged, or notched, and sometimes as if a portion had been torn and remained separated from the rest: I attach great consideration to this state of the part, because it is not likely to be produced by the expulsion of any accidental formation from the cavity of the uterus; and I have never met with it except after childbirth, nor do I believe that it is ever the natural, original condition of the uterine orifice.

Rœderer considers this state of the os uteri[1] as furnishing a "signum indubitatum partus jam editi." Schmitt describes this notched state of the labia oris uteri as occurring in a girl who was supposed not to have been previously pregnant, and from this fact, takes occasion to discredit this condition of the orifice as a sign of previous delivery; but, this young woman confessed, that she had incurred the risk of pregnancy, so that, we may reasonably suppose that her case did not, in all probability, form an exception to the accuracy of this diagnostic sign.[2] Schmitt subsequently relates the case of a widow[3] who had lived several years with her husband without having any child during the time, and had the cleft state of the os uteri; but he afterwards discovered that she gave birth to one before her marriage. But, the converse of this will not hold good, the unfissured state of the uterine orifice will not be sufficient proof against the former occurrence of childbirth; for a woman may have been delivered, even of a full-grown child, without the production of this change in the os uteri, or only in a trifling degree; or if a considerable time has elapsed, this part may not retain any alteration that would enable us to detect the fact; and this observation will of course apply, still more strongly to cases of abortion, or premature delivery; under such circumstances, the orifice, may present nearly, if not completely, the characters of its virgin condition.[4] The value of the evidence to be obtained from a lacerated state of the perineum will be fully considered presently.

Before proceeding to investigate, in detail, the present circumstances of any case submitted to us for examination, we should endeavour to possess ourselves as fully as possible, of the previous history of the woman, if that be not already known to us; which may have been, on the one hand, such as would greatly tend to render probable the occurrence of delivery, or, on the other hand,

femorum crurumque cœrulæ, ex gravidarum varicibus natæ, per plures annos, si ampliores fuerint varices, subsistunt."

"Varium maculæ post plures annos disparent, et in multis feminarum, cum ipsis varicibus, totæ desiderantur." Elem. Art. Obstet. pp. 40, 41.

[1] "Interim præterea labiorum margines fiunt inæquales tanquam incisionibus notati, et cicatricibus fuerint."

[2] Researches on Cases of Doubtful Pregnancy, 1st Div. Case 17.

[3] Ibid, Case 33.

[4] For an elaborate description of the differences observable between the os uteri of the nullipare, the primipare, and the multipare, see a paper by M. Marc D'Espine in the Arch. Gén. de Méd. for April 1836.

to diminish, or perhaps altogether forbid, our belief in its possibility. We may, for instance, learn that she had been, for several months, observed to be increasing in size, and exhibiting other symptoms of pregnancy previous to the time at which delivery was suspected to have taken place; or, we may have reason to know, that she had been long labouring under some form of disease, which, while it rendered the occurrence of pregnancy extremely improbable, was, at the same time, such as would be likely to induce many of its symptoms. The age, also, of the individual may be such as would tend to confirm us in a negative opinion; and, even supposing that we are satisfied that conception had occurred, this may in no measure facilitate our investigation, but may, on the contrary, involve us in further difficulty. It has been already shown that a woman may be pregnant, and that the fruit of her womb may be blighted at any period, but may be retained in utero until the full time is accomplished, while the size of the abdomen happening, from some other accidental cause, to continue increasing, until the expulsion of the degenerated ovum occurs, the woman may be suspected of having brought forth a child; nay, it may even happen, however paradoxical such an assertion may, at first sight, appear, that pregnancy and utero-gestation, even when their full term has been nearly accomplished, and the life of the fœtus distinctly recognised, are not necessarily followed by the birth of a child, as is proved by the facts of the following very remarkable case which the writer saw, some years ago, with Surgeon Whitestone and Mr. Mulock. Mrs. C., of Charlemont street, became pregnant for the fourth time, and up to the seventh month, matters went on favourably; but, after that time she ceased to feel the motions of the child, which had been previously very active; she, however, continued to increase in size up to the end of the ninth month, when the membranes having protruded into the vagina and ruptured, a great quantity of horribly offensive fluid and gas made their escape, but no child could be discovered: in a few days afterwards the placenta and cord came away completely macerated, and all the interstitial matter so completely removed as to present a most perfect, ready-made preparation of the umbilical or placental vessels, even to their most minute capillary terminations;[1] but nothing remained of the child, except the bones, many of which were subsequently discharged, from time to time, during the two years which the patient survived. Morgagni quotes from Nebelius a case strikingly analogous to the above: it is that "of a mature fœtus which was endeavouring to procure its own discharge at the proper time; but, after the efflux of the waters, gave the more certain signs of its death, as, in the following weeks, a fœtid and bloody ichor, with little pieces of membranes, and fleshy fibres flowed from the pudenda: and, finally, this fœtus was reduced to a skeleton, so that the crackling of the bones was heard as often as ever the

[1] It is preserved in the writer's museum.

woman bent her body backwards or forwards; yet she being afflicted with no fever that is mentioned, nor any other considerable incovenience, had even carried those bones in the uterus, for three years together, without any loss of health."[1]

The facts of such cases appear to me sufficient, in themselves, to demonstrate the imperfection of the rule of law concerning concealment of birth, in order to prove which, it is held sufficient to ascertain, that there has been a pregnancy, or a delivery; for in those cases pregnancy was clearly ascertained, the motions of the child were strongly felt, and the full term of gestation was accomplished, yet no child was born.

It has already been suggested, (pp. 31, 156,) that a woman may conceive, and yet, not become with child—so here it appears that pregnancy may exist, with a living child for several months in the womb, of which the mother may not be delivered, and yet not continue truly pregnant.

It may also be observed here, that should such a case as this give rise to the suspicion of infanticide, the accusation could not be sustained, because, in order to do so, the existence of the child must be proved and its body found; and in suspected cases, whether of *concealed* or *feigned* delivery, we should very carefully examine the child, if possible, for the purpose of ascertaining whether its state corresponds to the supposed or pretended time of delivery, and to the other circumstances of the case, as, by so doing, the attempted fraud may sometimes be at once detected. If, for instance, a woman feign to have been delivered two or three days before, and produce, as her own, a child with the cord separated and the umbilicus quite healed; or, on the contrary, if delivery be asserted to have taken place a month before, and the cord be found still attached to the navel, such incongruities would be, so far, decisive against the truth of the woman's account. Other discrepancies, such as want of correspondence between the development of the child and the period of pregnancy accomplished, or the interval after delivery, will readily suggest themselves, and ought to be very carefully attended to.

Having made these general observations, we have next to consider in detail the individual signs, by an examination of which, we may be enabled to form an opinion as to the recent occurrence of delivery, when such enquiry is instituted within a proper time after parturition is supposed to have taken place.

1. The face is generally a little paler than usual, the eyes are somewhat depressed, and, not unfrequently, surrounded by a slightly brownish circle, and the whole expression of the countenance resembles that of a person recovering from a slight indisposition; the pulse is more or less accelerated, the skin softer and warmer than

[1] Epist. xlviii. art. 42. In the Veterinarian for May, a very remarkable case of the same kind is related, as having occurred in a cow: quoted in the Lancet for May 6, p. 225.

usual, and relaxed with a moisture which has in many a peculiar, and sometimes, very unpleasant odour.

2. The state of the breast ought to be a subject of particular attention, especially if examined about the third or fourth day after delivery, at which time they are generally full, tense, and hard, or even knotty under the hand, and if pressed, or drawn, they yield a lactiform fluid; the nipples appear turgid, and the areolæ are dark and otherwise altered, as already fully described, Chap. IV.

The fluid first secreted by the breasts, i. e. within the first two or three days, and which is called colostrum, differs, in general, in its qualities from that which is subsequently secreted. It is of a decided yellow colour, thick, tenacious, and ropy; coagulates by heat, acids, and alcohol; has a specific gravity of 1,072, while that of the fully formed milk is 1,023, and contains, according to Meygenhofer, a larger proportion of salts.[1] But these points of difference do not appear to be sufficiently constant, nor, as yet, established by experiment with sufficient accuracy, to warrant us in laying much stress on them, in a judicial examination.

3. The abdomen is full, its integuments greatly relaxed, or even thrown into folds, especially in those who have borne several children; the skin is remarkably movable on the subjacent muscles, and occasionally the muscles are found separated along the median line, see p. 5., and we recognise those light-coloured broken streaks or cracks already mentioned, which are generally most numerous from the groins and pubes towards the umbilicus, which is often found projecting and of a conical form; in some cases, there is, also, to be seen extending between these two points, a brown line of about a quarter of an inch in breadth, especially in women of dark hair and strongly coloured skin. If the hand be pressed pretty firmly over the lower or pubic region, we feel,—4. the tumour produced by the volume of the imperfectly contracted uterus, which is felt, when examined within a day or two after delivery, about as large as the head of a new-born child, and rising three or four inches above the brim of the pelvis, into the cavity of which it can be traced by the hand, and lying towards one or other side.

5. The state of the os uteri, vagina, and external parts, next claims our attention. By an examination per vaginam, we detect the enlarged state of the uterus, and its identity with the abominal tumour, and, at the same time, we ascertain the condition of the os uteri, which, in a recently delivered woman, is found gaping open, so that two or three fingers might be introduced into it with ease; its margins are flabby and very much relaxed, and, not unfrequently, feel as if divided by several small fissures.

If the examination happens to be made within a few hours after delivery, the patulous state of this orifice is such, that its margins cannot be distinctly recognised, so that we feel at a loss to distinguish between it and the cavity of the vagina, of which it seems as

[1] See Berzelius, Traité de Chimie, &c. tom. vii. Desormeaux and Orfila, Dict. de Méd. tom. xii. pp. 554, 572.

if it were a continuation. This latter part, also, is greatly relaxed and dilated, in consequence of which, its internal surface is rendered smooth, its natural rugæ being obliterated by the recent distension of its tissues. From the same cause, also, the external parts are swollen, not unfrequently contused, or even torn, especially after a first, or a difficult labour, and partake of the relaxed state of the internal parts; there is also, found issuing a peculiar discharge, to which we apply the name of lochia.

6. Laceration of the perineum. When a woman, for the first time, gives birth to a full-grown child, it frequently happens, that the thin fold of integument constituting the anterior edge of the perineum, and called the fourchette, is torn, and sometimes, the rent extending further backwards divides the proper substance of the perineum, to a greater or less extent; this, however, is merely a contingency, which may or may not take place, and is, in fact, of rather rare occurrence, except in the simpler form first mentioned; but if recognised in the greater degree, is a very strong proof of delivery having preceded.

7. The lochia. From the time of delivery, a sanguineous discharge is eliminated from the genitals, and continues to flow for a period varying between four or five days, to as many weeks, according to the peculiar habit or constitution. In general, the discharge continues red for the first three or four days, and then becomes nearly colourless, or acquires a slightly brownish, or dirty greenish hue, from which it is sometimes vulgarly called *green waters*, and, after a week or eight days, it ceases altogether. In some it does not continue red for more than a day or two.

This fluid has a peculiar odour,[1] not easily named, which distinguishes it from menstruation, leucorrhœa, or morbid discharges. Loder compared it to the smell of "fish-oil:" others speak of it as a sour smell, but any one who has been much about lying-in women, especially in the wards of a lying-in hospital, must be aware of the peculiarity of this *odor gravis puerperii*, which, Dr. Beck informs us, it has been found impossible, by any artifice, to destroy.[2] We should also consider whether the condition of this discharge corresponds with the state of the breasts, and other co-existing circumstances.

Should such an assemblage of symptoms as are here enumerated be recognised in the case submitted for examination, no doubt could be entertained of the fact of delivery, there being, to use the words of Chaussier, "no disease or affection, besides parturition, which can possibly produce the whole series of signs above described." Should we happen to discover a placenta in the vagina or uterus, it would be decisive evidence, see pages 22, 23.

But we may not enjoy the advantage of having before us such a satisfactory combination of proofs, and may be under the necessity

[1] Marc. Dict. de Méd. tom. i. p. 227; Foderé, t. ii. p. 13.
[2] Elem. Med. Jurisp. p. 154. ed. 5.

of forming our opinion when only some of these signs can be detected, and others are entirely absent; and when we come to examine them separately, we shall find, that they must be received in evidence with very great caution, and with various modifications of their value, by which the proofs which they afford will be found little more than merely presumptive. Thus, it is obvious, that the expression of the countenance, as well as the state of the pulse and skin above noticed, may be induced by any indisposition or exertion which may have depressed the bodily strength of the woman, and otherwise disordered the functions of her system.

The state of the breasts has been already very fully considered, so that it appears only necessary to observe here, that, as, on the one hand, such a circumstance as the expulsion of hydatids is capable of inducing great functional activity in the mammæ, and an abundant secretion of milk, so, on the other hand, it occasionally happens in weak, delicate women, that little or no alteration is perceived in the breasts after delivery, (see page 39); and it was elsewhere remarked, that in such persons, a similar want of sympathy is sometimes observable during pregnancy, so that, the changes in the areolæ are but imperfectly established. Still, we are fully warranted in considering a full breast, with abundance of milk, about the third or fourth day after delivery is supposed to have taken place, as a very strong indication of such an occurrence. "It is possible," says Mr. Burns, "for this secretion to take place independently of pregnancy, but not with the appearances just described."[1]

The fulness of the abdomen and relaxed state of the integuments, as well as the appearance of streaks or cracks, and separation of the muscles, may all arise from any cause capable of producing the same degree of distension as occurs in consequence of pregnancy, such, for instance, as dropsy, or enlarged ovary, or other abdominal tumour; or they may be the result of a former pregnancy; and we have already seen, that they may be produced so early as the fifth or sixth month of gestation. The brown line sometimes found extending from the pubes to the umbilicus is only of occasional occurrence, which remark may also be extended to the other alterations observable in the abdominal integuments, except their relaxed condition; so that they may not be found when delivery has really, and even recently occurred.

As to the uterine tumour, we must expect to find it distinct, or otherwise, in proportion to the recency of the delivery and the period of pregnancy at which it took place, the fatness or tenuity of the abdominal parietes, and the degree of activity with which absorption and the contractile action of the uterine fibres may have proceeded, from which results in a great measure the difference in the degree of development which this tumour presents in different persons, at the same interval of time after mature parturition, being

[1] Principles of Midwifery, 7th edit. p. 547.

smaller, and, in consequence, less easily felt, in some at the end of four or five days, than in others after double the time. Besides this, a tumour may be felt so situated, and yet may not be the uterus. To satisfy ourselves on this point, we must conjoin the examination per vaginam with that already made externally; and, even when we have ascertained the exact nature of the tumour, we must recollect, that it may equally arise from the organ having recently expelled a mole, a large mass of hydatids, or even a considerable accumulation of retained menstrual discharge;[1] which accidental circumstances might also produce, to a certain degree, the dilated and relaxed state of the os uteri, in which the vagina and external parts would participate. But, from such causes as these, there would be found neither swelling, contusion, nor laceration of the external organs; nor could the os uteri be rendered patulous merely by increased secretion, such as long continued leucorrhœal discharge, which sometimes induces extraordinary relaxation of the other parts.

Laceration of the fourchette, although a very common occurrence in childbirth, does not always take place. I have already, p. 196, spoken of a lady who bore five children, without sustaining any injury to that part; and I once examined a young girl of sixteen, and of very diminutive stature, who had borne a full-grown child some months before, and the fourchette escaped uninjured. "With the birth of the first child," says Dr. Blundell, "the commissure is generally torn through, and the fossa disappears with it, though not always; so that, the existence of these parts is no disproof of previous childbirth. And I remember, myself, a case in which, though I had delivered the patient, not without difficulty, with the forceps, the commissure and the fossa existed afterwards, in all their perfection."[2]

Several other instances of integrity of the anterior edge of the perineum after delivery have come under my observation;[3] but should a laceration of the perineum be discovered, it is a proof of immense importance. We must, however, recollect that it may present itself under conditions indicating a more or less remote date, as that of the delivery which caused it: thus, it may be found a fresh unhealed wound, or the margins of the laceration may be perfectly healed or even callous, but quite disunited and separate from each other; or, lastly, complete union may have taken place, so that the presence of a rigid cicatrix is the only evidence remaining of the occurrence of the accident.[4]

[1] See page 35.

[2] Lancet, N. S. vol. iv. p. 461.

[3] See also Marc, loc. cit., and Foderé, tom. ii.

[4] Dupuytren mentions that he was once called by M. Gardien to see a young woman who was delivered in secret. The perineum had been extensively ruptured; but, by the continued use of the suture, he succeeded in causing it to unite completely. Three or four years afterwards he was visited by a man and woman, the husband seeking advice because he could

Now, should we happen, in an examination of this kind, to discover a fresh laceration of the perineum, in connection with others of the signs we have been considering, especially the relaxed and dilated state of the os uteri, vagina, and external organs, and the presence of the abdominal tumour, it ought to be considered as decisive of the fact of recent delivery: but neither of the other states of the parts would be equally conclusive as proof of a *former* delivery, because they might have been produced by causes totally unconnected with childbirth, as happened in the case of a girl who was romping with a young man, and, losing her balance, fell backwards on the point of the leg of a stool, which tore through the perineum and entered the vagina, causing a frightful laceration. Or it may have been caused by some surgical operation on the part, as in the case related by M. Berard, where it was found necessary to divide the perineum in order to accomplish the removal of a pessary which had lain several years in the vagina.[1] About two years ago, a patient applied to the writer for relief, as she was labouring under prolapse of the uterus and incontinence of urine: on examination, there was also found extensive laceration of the perineum, but none of these accidents were the result of delivery. The unfortunate woman had led an abandoned life, and was the victim of a horrid outrage committed by three or four drunken ruffians, who having first violated her, forced a broken stone into the vagina, which tore the perineum and the neck of the bladder. The stone had been removed in the hospital, but the lacerated parts never recovered the injury.

As to the lochia, we cannot expect to obtain much information of a satisfactory kind from that source, especially if the examination is not made very soon after delivery. I have known the discharge cease after the second day; and even when this is not the case, we must take care that we do not confound with it some discharge of a different nature, such as the menstrual, or perhaps one of a morbid origin, from either of which however, its peculiar smell and a careful examination of the uterus and external organs would almost certainly enable us to distinguish it. Should there be found mingled with it, shreds of transparent membrane, or of placental structure, all doubt would be removed. When women have feigned delivery, they have occasionally stained their body linen and bed-clothes with the blood of other animals, as of the cow,

not effect penetration, owing to the contraction of the external genitals in his wife, Dupuytren's old patient. The orifice of the vagina was excessively narrow, and a strong cicatrix all along the perineum. The husband was advised to persevere, which he did, and succeeded. The woman became pregnant, and was delivered, strange to say, without a renewal of the rupture. Leçons Orales, tom. iii. pp. 106. 7.

M. le Docteur Buet met with a nearly similar case, in which the husband was much delighted with the circumstance, as proving beyond all doubt the maiden purity of his lady. Journ. Comp. des Sci. Méd. tom. xxxix.

[1] Journal Hebdomadaire, tom. i. p. 263.

sheep, &c.; if this be suspected, it might be satisfactory to institute the mode of investigation proposed by M. Barruel, who discovered that the blood treated in a certain way with sulphuric acid, evolves an odour peculiar to the animal from which it was obtained;[1] how far reliance can be safely placed on such a test, the writer is not prepared to say, but it has received the sanction of several very competent judges.

Perhaps I could not more appropriately conclude this review of the ordinary signs of delivery than by quoting the words of two very distinguished writers on such subjects. "The relative value," says Dr. Paris,[2] "which each of the signs possesses will be better appreciated after we have considered the diseases whose effects may resemble them; but as a general principle we are anxious to enforce the necessity of always considering the consecutive signs of parturition collectively, and not individually; under such circumstances, the practitioner can never be betrayed into an erroneous conclusion." "Other circumstances," observes Mr. Burns,[3] "may also concur in confirming the opinion of the practitioner; as, for instance, if the patient give an absurd account of the way in which her bulk suddenly left her, ascribing it to a perspiration, which never in a single night can carry off the great size of the abdomen in the end of a supposed pregnancy."

Delivery without consciousness.—Having in a former chapter, (see page 132,) discussed the possibility of impregnation being effected without the woman's knowledge, as during sleep, and having alluded to the fact of delivery sometimes taking place under similar circumstances, as an argument *a fortiori* in favour of the credibility of such an occurrence, it seems necessary now, to consider briefly that question. That a woman may be delivered without being sensible of it, if she be at the time labouring under cerebral oppression, or derangement, as in coma, in delirium, in puerperal convulsions, stupified by narcotics,[4] or by ardent spirits,[5] is a fact of repeated observation; but, it is not pretended, that in such instances, the woman could be *afterwards* ignorant that she had been delivered, except in cases of mental disturbance lasting through a considerable period of time, as in the following very remarkable case, from a source which leaves no doubt of the accuracy of the relation. "A fright produced by the dangerous situation of her only son, when eighteen months old, brought on, in Mrs. Durant, an alarming illness attended with some singular phenomena, the most singular of which respected her memory. The

[1] For references to several authorities on this subject, see Beck's Medical Jurisprudence, 5th edit. p. 548. And for a full account of the mode of conducting such an examination, see Devergie, Méd. Lég. tom. ii. p. 908 et seq.

[2] Medical Jurisprudence, vol. i. p. 253.

[3] Principles of Midwifery, 7th edit. p. 547.

[4] As in the celebrated case of the Countess of St. Geran. *Causes célèbres*, Cause 259.

[5] See case by M. Deneux in the Dict. des Sciences Méd. tom. xxxi. p. 212.

illness happened in July; she was then advanced six months in a state of pregnancy, and was, when perfectly insensible, delivered of a child. On awaking from the insensibility, which had continued for three days, she imagined it was the month of *January*. Her mental powers generally were but slightly impaired, and soon regained their former perfection; nor was her memory affected, except as regarded the preceding six months: of that time she had forgotten *all* the events. Some accidental circumstance might afterwards, occasionally produce a train of thought, which would bring an event of that six months to her recollection. Several of the most important, however, were never regained, *nor could she, I believe, to the hour of her death remember that she had then been pregnant.*"[1]

The occurrence of delivery after the life of the mother has become extinct, and consequently effected by the independent contractile power of the uterus, has been attested by so many authors of established credit, that we cannot refuse it our belief; having received the testimony of Foderé,[2] Buffon,[3] Leroux,[4] Levret,[5] Baudelocque,[6] Bichat,[7] and others[8] of equally high authority, who have recorded instances of the fact, to which for the present, we shall merely refer, as below, and proceed to notice two or three facts more directly in proof of delivery during sleep, or insensibility. For the first of these, the writer is indebted to Dr. Douglas, one of the most experienced practitioners in this city, and whose correct and ingenious exposition of the evolution (improperly called spontaneous) of the fœtus, is so well known to the profession. In a letter to the writer, Dr. Douglas states, that he was called about six o'clock A. M., on the 26th of September, 1828, to attend Mrs. D., of the county of W——, but then residing in Eccles-street. On his arrival, he found the house in the utmost confusion, and was told that the child had been born before the messenger was despatched for the doctor; and from the lady herself, he learned, that about half an hour previously, she had been awakened from a natural sleep, by the alarm of a daughter about five years old, who had slept with her for some nights before; and this alarm had been occasioned by the little girl feeling the movements and hearing the crying of an infant in the bed: to the mother's great surprise, she found she had brought forth her child without any consciousness of the fact. Mrs. D. had had several children with favourable

[1] Durant's Memoirs of an only Son, vol. i. p. 147.
[2] Méd. Lég. tom. ii. p. 11.
[3] See Gardien, vol. ii. p. 212.
[4] Obs. des pertes de Sang. Obs. xiii. p. 25.
[5] Art des Accouchemens.
[6] Art des Accouchemens, tom. i. p. 123 note, Ed. 1822.
[7] Anatomie Descriptive, tom. iv. p. 392. Ed. 1829.
[8] See Hartemann, Act. Nat. Curios. Dec. 11. an 3. Dict. des Sc. Méd. vol. xxxi. p. 212. Journ. Univ. des Sc. Méd. Août 1817. Lond. Med. and Phys. Journ. vol. xlvii. p. 26. Dr. Planque, Bibliothêque de Méd. Choisie, vol. iii. p. 222.

labours. In the London Practice of Midwifery,[1] a work generally ascribed to a late very distinguished practitioner, we find the following account. "A lady of great respectability, the wife of a peer of the realm, was actually dellivered once in her sleep: she immediately awaked her husband, being a little alarmed at finding one more in bed than was before." Such a contingency could, however, only happen under peculiar circumstances, certainly not in a first delivery. "We may suppose," says Denman, "the parts through which the child must pass, so perfectly disposed to dilate, that they would make little or no resistance to the excluding force, and then a woman would be delivered with little or no pain. This observation will not only discover the reason of the great advantage obtained by a labour being slow and lingering, and why some women are delivered comparatively without pain, but, with this perfect disposition to dilate, if the patient should be asleep when the action of the uterus came on, of the possibility of her being delivered before she was quite awake."[2]

Examination after death.—Having already, Chapter XII. p. 144, described the signs of pregnancy which may be discovered after death, it will not be necessary, now, to say much in addition to the observations already made. In such an examination, our attention should be directed to the same objects which we have been just considering as the proofs of delivery which may be recognised during life, almost all of which may be also ascertained after death, provided, as before insisted on, the investigation be undertaken within a proper time: in addition to these means, by opening the body we are enabled to satisfy ourselves more precisely, of the exact condition of the uterus and its appendages. Should death take place during, or immediately after the act of parturition, especially from hemorrhage, the uterus may be found lying in the abdomen, a flattened, flabby bag, from eight to ten inches long, its mouth gaping wide open, so that the hand would pass through it without resistance; its parietes are soft and relaxed, its cavity often containing large coagula of blood, and its internal surface covered with the soft and pulpy remains of the decidua, intermixed with flakes of lymph, which, if the part be immersed in fluid, appear as flocculent processes adhering to, and springing from it, in great numbers, while the portion to which the placenta had been adhering is distinguished by having less of these deciduous flakes, the substance of the organ in that situation appearing as if laid bare, and exhibiting several semilunar, and apparently, valvular openings in its structure.

But these conditions will be greatly altered should the woman have survived delivery a few days, so as to afford time for the

[1] Fifth edition, p. 87. See also Barlow's Essays on Surgery and Midwifery, p. 182.

[2] Introduction to Midwifery, 5th edit. p. 275.

uterus to contract; and the change produced will be in proportion to the time since delivery and the energy with which the organ may have exerted its contractile powers, so that, in some instances, it may be found as large, at the end of a week, as in others, where the examination is made within two or three days. It would therefore be very difficult, if not impossible, to assign the exact dimensions which the uterus will present at given periods after mature delivery; and should it have occurred prematurely, these dimensions will of course be thereby still further affected. When delivery has taken place at the full time, and the uterus has contracted perfectly, if an examination be made within a day or two, it will be found about seven or eight inches long, and four broad; its external surface having a vascular appearance, and not unfrequently presenting patches of a purplish colour; its substance, divided by the knife, is found from an inch to an inch and a half thick, of the consistence, and nearly of the colour, of firm muscular fibre, of which it apppears to consist; and the cut surface displays the orifices of a great number of very large vessels. In the writer's museum is the uterus of a woman who died on the second day after delivery at the full time, and it measures eight inches in length by four and three quarters in breadth, and three in the antero-posterior diameter. Its parietes are from one inch five lines, to one inch in thickness; its internal surface differs little from the description already given; the Fallopian tubes and ovaria, or at least one of the latter, are turgid and vascular, and lying more confined to the sides of the uterus. If the labour has been accompanied by profuse hemorrhage, or if from any cause the organ has not contracted well, its dimensions will be proportionally greater.

At the end of a week, the organ has diminished to a length of between five and six inches, and after a fortnight, does not exceed five inches in length; its vascularity is diminished, and the thickness of its parietes reduced about one third; but the density of their structure is found increased in a like proportion, so that, the orifices of the vessels are much less distinct, and the colour of the muscular substance has become much paler. But, it must ever be taken into account, that the dimensions of the uterine tumour, after delivery, will depend, first, on the interval of time elapsed, and secondly, on the period of gestation at which its contents were expelled; so that, for example, if delivery occurred in the sixth month, the uterus would be found as small, two or three days after delivery, as it would at the end of two or three weeks after parturition at the full time. The writer had very recently an opportunity of examining two cases in point. In the first, the woman died *sixteen days* after mature delivery; the uterus was five inches two lines in length, three inches eight lines in breadth, and its substance averaged in the body and fundus, from seven to eight lines in thickness. In the second case, death occurred *thirteen days* after premature delivery in the seventh month; and here the uterus

measured only three inches nine lines in length by two inches nine lines in breadth, and its substance was from six to seven lines in thickness.[1]

After the third week, very little information is likely to be obtained from an examination of the uterus merely; for although it, probably, is not reduced to its original unimpregnated condition before the end of the fourth week, the alterations which can be appreciated towards the conclusion of that period are too liable to have been induced by contingent causes to allow of our attaching value to them as proofs of delivery. Under such circumstances, our attention would be more profitably directed to an examination of the ovaries and the existence of the corpus luteum, the value of which has been already so fully considered, p. 145 et seq., that it appears now only necessary to remark, that, although its existence is, in the writer's opinion, proof positive of previous conception, it can be received as evidence of recent delivery, only when it is found in connection with other circumstances indicative of the occurrence of that event,[2] in which case it ought to be considered as a very powerfully corroborative proof. To what has been stated already, p. 157, concerning the cicatrices on the surface of the ovaries, I shall only add here, in reference to their not being permanent, the opinion of Murat, whose observations confirm my statement in a very satisfactory manner: his words are: "Placé dans un hospice de femmes, j'ai souvent fait des recherches à ce sujet; et je me suis assuré, qu'il n'était pas possible de determiner le nombre des grossesses par celui des cicatricules; car la plupart s'effacent avec l'age."[3]

The substance of the preceding observations may be summed up in the following general corollaries:

1. The signs of delivery are most distinct after the birth of a full grown child; and least so, when the uterine contents have been expelled at an early period of pregnancy.
2. The proofs are more distinct in proportion to the recency of the delivery, and any examination made after the lapse of ten days from the time of the delivery is not likely to afford satisfactory information; the most decisive signs in general, disappearing within a week.
3. The third or fourth day, generally, presents the results of delivery distinctly, the condition of the breasts being then most remarkable, from the active secretion of milk.
4. A first delivery is more easily detected than subsequent ones.
5. We cannot, safely, rely on any of the signs of delivery viewed separately, but must consider them collectively, their mutual

[1] These uteri are preserved in the writer's museum.

[2] See Report of the trial of Charles Angus for the murder of Miss Burns, Liverpool, 1808.

[3] Dict. des Sci. Méd. tom. vi. p. 204.

relation and correspondence with each other, and with the other collateral circumstances of the woman's case and history.

6. The chief points of attention ought to be the state of the uterus, the external parts, and of the breasts.
7. There are certain physical signs which, when present, are sufficient to establish a negative decision; such are, for instance, a perfect hymen, or an imperfect state of the parts.
8. But, on the other hand, a woman may have borne children, and no one mark remain, by which the fact of delivery could be proved, after the lapse of even a few weeks.
9. A woman may be delivered while in a state of insensibility, or even during deep natural sleep; so that her child may perish, merely from want of attention, and without any moral delinquency on her part.
10. A woman may be naturally pregnant, and the life of her child ascertained, and yet childbirth may not occur; the child perishing and being decomposed before the time of delivery, as in the cases related p. 200.

ON THE

SPONTANEOUS AMPUTATION

OF THE FŒTAL LIMBS IN UTERO.

In the early part of the year 1832 I published, in the Dublin Journal of Medical Science,[1] a short paper on the spontaneous amputation of the limbs of the fœtus in utero, in which I detailed the particulars of the case which enabled me first to explain the real nature of that remarkable phenomenon, and to point out the agency by which the separation of the limb is produced.

Since the publication of that paper, and of another which I inserted in the same journal, in the latter part of the same year, the subject has attracted a good deal of attention not only in these countries, but also on the continent and in America; from all of which places, cases or notices have appeared; and as the explanation given by me of the mode in which this singular pathological change is effected has been, I believe, universally adopted as the true one, I thought it would be advisable to insert here a brief account of my former cases, together with some which have since occurred to myself, or others, with such additional observations as further opportunity for examining the subject may have suggested.

This remarkable lesion has been mentioned by several authors of credit, as Richerand,[2] Desormeaux,[3] Billard,[4] and Murat;[5] though none of them appear to have witnessed any case of the kind themselves, but they all agree in regarding this pathological change as simply the result of inflammation and gangrene. Haller evidently was not aware of any such case, for, although he gives a long list of extraordinary mutilations of the fœtus, he considers them as the result of imperfect development or malformation, and not of separation, or *removal of parts already formed*; for he expressly objects to the authors who have furnished such descriptions, that they cannot even quote one instance in which "manus truncata, aliusve artus, in membranis fœtus, seorsim a corpore, repertus sit."[6] Having sought with diligence through authors, the only cases which I have been able to find are those which I shall now briefly mention.

In the 54th vol. of the Lond. Med. Phys. Journ., Mr. Watkinson

[1] See vol. i. p. 140.
[2] Elémens de Physiologie, p 477.
[3] Dict de. Méd. tom. xv. p. 404.
[4] Maladies des Enfans, p. 623.
[5] Dict. des Sci. Méd. tom. xvi. p. 70.
[6] Elem. Physiologiæ, tom. viii. p. 135.

states, "that being in attendance on a lady of twenty years of age, in her first labour, which was natural and easy, he discovered, on the birth of the child, that the left foot had been amputated a little above the ankle, and the part was *nearly* but *not quite healed*, the bones protruding a little. The child was alive, but survived only a few minutes; on making further search, the amputated foot was found in utero, and it, also, was nearly *healed*. There did not appear to have been any hemorrhage from the limb; the separated foot was *much smaller* than the other, it showed *no mark of putrefaction*, but appeared to be in a state of *perfect preservation*, not being even discoloured; the mother had not met with any accident, nor any particular mental emotion, and she was sufficiently independent to render unnecessary any over exertion on her part." Mr. Watkinson offers no opinion on the nature or cause of the accident.

Chaussier[1] mentions having examined two cases, in which, separation of a part of the fore-arm had taken place before birth; and in a third case, he found the separated portion of the arm and hand lying apart, and *the stump of the limb healed*.

Chaussier, also, attributes the accident to gangrene, as the cause which would most obviously account for its production, though it does not appear, from his account, that there were present any of the pathological evidences of that condition; and, in the case first related, the child was born alive, and it is expressly mentioned, that neither the stump of the limb, nor the part amputated showed any symptom of disorganisation, or disease, not being even discoloured.

The next case was one occurring in my own practice, and appears to me of great importance as exhibiting the amputation absolutely in progress, under the influence of the agent which I believe to be the general, and most probably, the invariable cause of its occurrence.

About eight years since, I attended a patient under circumstances of considerable danger from hemorrhage, attending abortion in the fifth month; and, on the expulsion of the fœtus, its singular conformation fortunately attracted my attention strongly, and induced me to examine it closely. The head was misshapen and monstrous, the brain covered only by integument, and towering upwards like a helmet over the head; but, the circumstance deserving of especial notice was the appearance of complete ligaments surrounding the limbs; and on examining them closely, I found that they consisted of distinct threads passing from both hands downwards to the legs; at one end, these threads, or fine cords, had formed a complete ligature round the middle of each hand, causing a distinct depression where it passed, the part of the hand below it being almost completely undeveloped: from the hands, these cords descended towards the legs, which were crossed, and surrounding them in this position, just above the ankles, compressed them so tightly that fully two

[1] Discours pronouncé à l'Hospice de la Maternité, 1812.

thirds of their whole thickness were thereby divided, *without, however, causing any breach in the skin;* nor was there the slightest appearance of disease, or even discoloration of any of the parts, but, the feet were like the hands, imperfectly developed and misshapen.

The mother was about twenty-five years of age, and was, at the time, labouring under fever, but had been, previously, in perfectly good health, and had not met with any accident of bodily injury, or mental agitation. About four years after the occurrence of the case just detailed, another was brought under my observation, through the kindness of Dr. J. Labatt.

A healthy woman gave birth to a still-born child, in the eighth month of gestation; it was affected with an umbilical hernia of great size, formed by the protrusion of the liver, stomach, and small intestines, but the state of the limbs is the point of interest connected with our enquiry; both were misshapen, and, as happened in Mr. Watkinson's case, *the left* exhibits this remarkable pathological lesion, and exactly in the same situation: Just above the ankle, there is a deep depression all around the limb, and sinking to such a depth as to leave only the bones and skin unaffected by it; the diameter of the undivided part being less than half an inch, while that of the leg, just above the depression, is an inch and a quarter: the appearance of the groove is exactly such as would be made by tying a string very tight round the plump limb of a child, and, in my opinion, could not have been produced in any other way; the part had been very much handled and examined by several before I saw it, so that I was not surprised at not finding any ligature on the limb, but the mark of it was so distinct in the bottom of the depression, as to leave no doubt of its previous existence there producing constriction of the part. It is important, also, to observe, as confirmatory of my view of this matter, that *the integuments are not at all broken, or divided,* but are merely carried inwards with the constricting agent, so that, had the separation of the limb been completed, each stump *would appear skinned over*, except at the ends of the bones, and, so, present the appearance of being *partially healed*, as described by both Watkinson and Chaussier: the foot was a little swollen, and somewhat discoloured; it seemed turgid with blood, but was without any appearance, whatever, of gangrene. In both the instances here before us, from the condition of the limbs, and the impossibility of the parts under the ligatures continuing their growth, under such circumstances, it appears scarcely to be doubted, that, had the children continued to live and grow, the parts of the limbs below the constriction would have separated, and so undergone spontaneous amputation.

The next case to which my attention was drawn, was one very politely communicated to me by Dr. Tyson West, of Alford, Lincolnshire, in consequence of his becoming acquainted with my account of this matter. Dr. West attended a patient at the Westminster Lying-in Hospital in 1805, who, after a natural and easy

labour, gave birth to a still-born child which had but one leg, the other limb exhibiting "positive proof of having been spontaneously amputated some time before, the stump being *partially healed and nicely rounded*, about an inch and a half below the knee; the unhealed portion of the stump was about this size: he accounts for the amputated portion of the limb not being found, in consequence of the occurrence of a most dangerous accident, which threw all the parties concerned into great alarm and confusion. But he adds, that it struck him at the time, and he is still of the same opinion, that the division of the limb was effected by *some stricture round it*."[1]

When first announcing the discovery of this fact, I stated, that the origin of these ligatures, and still more their application, so as to stricture the limbs, were circumstances on which I did not feel prepared to pronounce an opinion with any reasonable probability of its being satisfactory, and I am sorry that five years' additional consideration of the matter has not fully enabled me to solve the difficulty. But I am happy to find, that so far as I have ventured to point out a proximate cause of this remarkable pathological phenomenon, my views have been assented to by some whose approbation is very gratifying. Professor Gurlt, of the Royal School of Medicine at Berlin, and author of a work on pathological anatomy, whose investigations render him peculiarly qualified to form an opinion on such a subject, has written a commentary on my first paper,[2] in which, he adopts, as correct, my explanation of this curious fact, and, in addition, undertakes to account for the formation and application of the ligatures.

He commences his observations by rejecting, in toto, the notion of the agency of gangrene: his words are: "To explain this most remarkable phenomenon, the utterly unfounded hypothesis has been formed, that these spontaneous separations are the result of gangrene, although there are no traces of it to be discovered on the stumps, they being actually, to a certain extent, healed, and no change of colour to be seen:" and he immediately adds, "a case lately observed by Montgomery, of Dublin, appears to contribute a natural explanation of this remarkable fact, in as much as it indicates the cause of this separation." He then repeats the details of my first case, and proceeds to say he "believes that both the formation of these threads and the amputation of the limbs which are, most probably, in all cases produced by them, may be explained by the history of the formation of the fœtus." He then enters into a minute detail of facts well known to all who are acquainted with the mode in which the development of the fœtus takes place, and observes, "I look upon these threads as prolongations of the egg membrane from which the fœtus grows, whether this skin (or mem-

[1] A notice of this case was inserted by Dr. West in the Lond. Med. and Surg. Journ. for 1832, vol. i. p. 741.

[2] See Medicinische Zeitung, January 1833, 1834.

brane) be taken as the navel bladder or the amnion :" and he subsequently objects to their being considered as formed by organised lymph, which I considered them to be, and still remain of the same opinion.

The prolongations of the membrane, Gurlt thinks, are afterwards, by the constant motions of the fœtus, twisted into slight, but firm cords, or threads, which may involve different portions of the fœtal limbs, (as we sometimes find the umbilical cord several times round the neck, or other parts of the child's body,) so as to stricture them, and cause their separation, and in this way Professor Gurlt explains the presence of the ligatures concerned in the production of spontaneous amputation. I dissent from this as a general explanation, for a reason presently to be stated, but, it is only justice to the author, to mention, that the condition of both the children which I examined was, in other respects, such as favours his theory, for whenever such unnatural adhesion takes place between the amnion and the fœtus, it gives rise to monstrosity of a peculiar kind, and this is observable in both these cases, and in others also; in one, there is protrusion of the brain, and monstrous formation of the head, in other respects; and in the other, the liver, stomach, and great part of the intestines were contained in a hernial sac, external to the body. But, notwithstanding the support thus derived from analogy, there is one circumstance which appears fatal to this explanation when applied to the first case described by me, which is, that in all cases where these membranous connections have been observed giving rise to montrosity, one end of the cord, or thread-like band, has always been found attached to the amnion, and the other to the fœtus, but here, *both* ends of the cords are attached to the limbs and afford no evidence of having been connected with the amnion; and it was for this reason that I abstained at first from offering the explanation now proposed by Professor Gurlt, which I then thought, and still consider inapplicable to the specimen which I was then describing, and equally, or perhaps still more so, to that described by Zagorsky, to be mentioned presently; though at the same time, I am quite ready to admit, that ligamentous bands so formed would be fully adequate to the accomplishment of such an effect; and I now know, also, that strictures from another source, and, which from their nature must possess very little constricting force indeed, are, in some instances, found sufficient, so completely to act on, and indent the limb, that, could their action be continued, which, however, is scarcely possible, they might ultimately induce a similar mutilation. While I was engaged in committing these observations to writing, to be read at an evening meeting of the College of Physicians, held to receive the members of the British Association on the 8th of August, 1835, I received a most interesting preparation from Dr. W. O'B. Adams, in which the coiling of the umbilical cord round *the left leg* of the fœtus at three months had deeply indented it. And more recently another instance of the same effect, produced just above *the left* knee of a fœtus about the same period, and by the same agent, occurred in a patient of mine.

I am very much disposed to believe, that Morgagni witnessed a fact of this kind; at least, his description of the appearance in a monstrous fœtus between the fifth and sixth month greatly resembles it, of which he says, "All the limbs were in a very bad state; the upper limbs, from the elbows downwards; for to the arms, which were very short and distorted, distorted hands were likewise added. And the inferior limbs terminated, likewise, in distorted feet, *but the left leg* was either *broken from the funiculus umbilicalis having been applied round it:* or was more distorted than the other parts:"[1] and he, afterwards, with great reason, conjectures, that the binding of the cord round the leg may have been the cause of the child's death, by interrupting the circulation through it.[2] It is a very extraordinary fact that in every one of these cases, as well as in several others, the injury was sustained by *the left leg*.

Subsequently to the period last alluded to, Dr. Simpson, of Edinburgh, has published[3] an excellent paper on this subject into which he has collected a vast quantity of curious information, and many most important cases from authors, to which he has added not a few from his own observation, together with several highly apposite remarks; and I am happy to find, that he also assents to, and, indeed strongly confirms my view, both as to the agent, which produces the change, and its consisting of organised lymph, such as is usually elaborated under the influence of inflammatory action, from which, it is well known, that several varieties of fœtal deformities arise;[4] and it is a matter of every day observation, how completely lymph so effused will be converted into distinct, firm threads, uniting opposite serous surfaces, especially those which move freely on each other, as the pleuræ and the peritoneal coverings of the abdominal viscera.

From the cases referred to by Dr. Simpson, I shall now notice three which appear more particularly illustrative of the true nature of this remarkable lesion, and confirmatory of my original account of it.

Zagorsky has described[5] a malformed fœtus of the fifth month, which, in addition to several other deformities, was deficient of the right leg, the thigh ending in a rounded and cicatrised stump, in the centre of which was a small projecting point; from this was prolonged a slender thread-like membrane, strong in proportion to

[1] Epist. xlviii. art. 53, vol. ii. p. 758 of Alexander's Translation.

[2] For other instances of impressions made on the fœtal limbs, &c. see Van de Laar, Obs. Obstet. Med. p. 41, and tab. 11; Meckel, Patholog. Anat. Bd. ii. S. 137; Sandifort, Thesaurus, tom. iii. p. 235, tab. 11, fig. 5.

[3] See Dublin Medical Journal for November, 1836 vol. x. p. 220.

[4] See Geoffroy St. Hilaire's investigations, in his work on "Monstruositiés Humaines;" Meckel's Handbuch der Patherlogischen Anatomie, Bd. ii. S. 138; and a paper on the diseases of the placenta, by Dr. Simpson, in the Edin. Med. and Surg. Journ. vol. xlv. p. 305 et seq.

[5] Memoirs of the Imperial Academy of Sciences of St. Petersbrrg for 1834, sixth series, vol. iii. pp. 3. 7.

its size, that ran directly across to *the left leg* which it encircled, a little above the ankle, like a tightened ligature, and formed in it a depression of considerable depth, while the portion of the extremity below the ligature, was, as well as the appended foot, rather tumified. From about the middle of the transverse thread-like membrane, a small body of an oblong form was suspended, which on examination proved to be the right foot perfectly formed, as its general outline and five toes demonstrated, but not larger in size than the foot of a fœtus of the tenth or twelfth week.

Beclard mentions[1] the case of a very deformed hydrocephalic fœtus, whose *left leg* was divided by a transverse depression that penetrated as deep as the bones, and resembled that which would have been produced by a tight ligature. The two opposite surfaces of this indentation were both cicatrised, and almost touching one another. "It is evident," says Beclard, "that if this fœtus had remained in utero, for some time longer, it would have been born with an amputated and cicatrised leg, the remains of which might have been found in the liquor amnii."

Albert F. Veiel quotes a case from Froriep's Notizen, Bd. xii. p. 26, of a fœtus "whose *left foot* was separated, during pregnancy, from the bone, and the fore foot was born by *itself, quite healed.*"[2]

The following case was recently published in the American Journal of Medical Science, by Dr. F. P. Fitch, of New Boston, in consequence of his having read my original paper. "On the 17th of March a healthy woman, then in the seventh month of pregnancy, suddenly discharged the liquor amnii. On the 21st a substance escaped from the vagina, which proved to be a perfectly well formed fœtal foot, apparently separated at the ankle-joint, and in a complete state of preservation. On the 5th of April she was delivered of a seven months' child, which lived about half an hour. At the left side of the centre of the forehead, there was a horny protuberance, of the size of the middle finger; the face, also, was greatly deformed. Upon the foot, the place of separation was contracted to the size of a small pin's head, and *the healing process had apparently been as perfect, and progressed very nearly as far as that on the lower extremity of the limb.*"[3]

Within the last few months, a child, of a month old, was brought to me from the county of Westmeath, in consequence of its having been born deprived of the left hand: on examination, I found the fore-arm of that side presenting, a little above the wrist, the appearance of a perfectly well-formed stump, as it would be found after amputation by the surgeon's knife; with this difference, however, that the mark of cicatrix did not extend across the stump, but, was confined to a small circular depression in its centre; the child

[1] Bulletins de la Faculté, &c. for 1817 tom. v. p. 213.

[2] Der linke Fus während der Schwangerschaft sich von dem Beine ablöste, und der Vorderfuss für sich, bereits geheilt, geboren wurde.

[3] No. xxxv. for May. 1836, p. 90. and Dublin Medical Journal for March, 1837, p. 166.

was otherwise quite perfect and healthy. Unfortunately, I could not obtain any information as to whether the hand had been found at the time of delivery, or not; the poor woman having been attended only by an ignorant country midwife. Three cases very similar to the above are described by Dr. Simpson.[1]

I feel almost convinced, that the removal of limbs in this way is by no means so uncommon an occurrence as the paucity of cases hitherto recorded would, at first sight, lead us to conclude; but the reason appears to me to be this: when the separated portion of limb was not accidentally discovered, the imperfection seems to have been considered, quite as a matter of course, and without further examination, as arising from imperfect development, or monstrosity; and, consequently, no search was made for the deficient part; and, even if search was made, the amputated member might have been so small, as to escape undiscovered, involved in the membranes, or burried in coagula, even though the child, to which it belonged, had attained considerable size, because, its separation may, as we have seen, take place a long time previous to birth: this is noticed in Mr. Watkinson's case, and still more strikingly exemplified in that described by Zagorsky.

With regard to the theories which have been advanced to account for such accidents as that which we have been considering: some, regarding them as the effects of mental emotions in the mother, or of accidents encountered by her, have attempted to support their views by details which Haller truly designates as "adeo fabulosa ut fidem auferant;" those who attributed this phenomenon to gangrene, did so from theory, and have received no support for their opinions, even from the facts which they have themselves recorded; for, it is expressly mentioned, that the parts affected seemed otherwise healthy, were not discoloured, and, at the point of division, were either partially, or entirely healed over. The explanation which facts, fortunately, enabled me to offer does not depend on conjectural reasoning, or theortical speculation, for its support, but its proof may be "oculis subjecta fidelibus" by the mere inspection of the parts, which are preserved in my museum. And with regard to the nature of the process by which the solution of continuity is effected and the foot or other part amputated, it appears to be strictly that of disjunctive atrophy, and in a great degree similar to that by which the separation of the funis from the umbilicus is accomplished.

There is undoubtedly much still to be ascertained on this curious subject, but, even the single fact discovered by me leads us, at least, one link farther into the chain of causes and effects; and though the advance thus made should be but one short step on the road to knowledge,

"Est quodam prodire tenus, si non datur ultra."

[1] Dublin Medical Journal, vol. x. p. 226.

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ELEMENTS

OF THE

PATHOLOGY OF THE HUMAN MIND.

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INTRODUCTORY REMARKS.

The relation of physical phenomena to human happiness is amply investigated in the present day. But the direct and practical effect, which the philosophy of *mind* is calculated to produce, has received far less systematic enquiry. That this should be the case, might easily be anticipated from the different degree of precision, which the steps made in each of these pursuits are capable of obtaining. And yet, with less public estimation of their value, the few principles thus actually obtained are calculated to exert a most beneficial influence on mankind.

As instances of such discoveries, I might adduce the supremacy of conscience as established on moral grounds by Dr. Butler; and his hypothesis, that "habit strengthens active principles, and weakens passive impressions."

It is my object in these pages to bring the philosophy of mind to bear upon the conduct of life in some new points of contact.

Such considerations are at present demanded on professional grounds. The medical art is not, as formerly, limited to the cure of specific and definite disease; its application is extended widely over our habitual and ordinary state. This fact is attested by the various works on diet, on dyspepsia, on the hygiene, which flow profusely from the press. But it should be remembered, that all that class of physical measures, which such considerations suggest, is calculated to produce a corresponding portion of mischief, unless the concomitant phenomena of mind are duly appreciated. A familiar illustration of this fact may be supplied from the disorders of the dyspeptic class of mankind. The dinner pill, the careful choice of the most appropriate condiment, and the autumnal recreation of the stomach at Carlsbad, might easily be made to supersede various moral considerations, in smoothing the temper, obviating or preventing regrets, and counterbalancing disappointment. But, when it is considered, that a heavy reckoning awaits those, who rely on such palliatives as an adequate substitute for self-control, the admission, that an enquiry into the methods of obtaining this habit,

should proceed *pari passu* with the direct physical expedient, will become obvious.

It were better that we should return to the habits of our forefathers, lose blood at spring and fall, and wait till acute disorders attack us for the occasion of calling in a physician, than that we should disjoin the consideration of mental therapeutics from those of the body.

Let it, indeed, be remembered, in illustration of the noble aphorism which I have above quoted; that the repetition of the dinner pill *may* be a diminution of its remedial virtue, while the repetition of the moral effort *must* tend to the formation of an active sanatory principle.

ELEMENTS

OF THE

PATHOLOGY OF THE HUMAN MIND.

CHAPTER I.

Primary mental disease implies *perversion, i. e.* insanity or *deficiency, i. e.* 1st, Brutality; 2d, Imbecility—Description of insanity more expedient than definition—Order of phenomena in an attack—Suspension of will occasioning, 1st, Moral incoherency; 2d, Incoherency of thought, *i. e.* delirium—False perceptions explained on the foregoing assumption—Insanity compared, relatively to the suspension of will, with the same state, with sleep, with inflammation of the brain—Lesion of judgment no proof of insanity.

Every morbid state may be viewed in relation to some change, which it supposes either in our material or our immaterial system: as influencing us, for example, in our capacity of reflective, observant, or imaginative beings, and again in our capacity of secreting, of absorbing, of growing, and of sentient beings.

We might give a history of inflammation of the liver in regard to the pains of thought, and the moral emotions to which it may give occasion—or again we might view it in relation to its influence on the pulse, the complexion, the sensation of pain, and the evidence of approaching suppuration.

But while the combined existence of physical and mental phenomena in every morbid state of man is admitted by us, it is equally obvious, that in *some* morbid states mental phenomena predominate, while in others there is a corresponding predominance in bodily symptoms. Thus an inflammation of the liver may be contemplated in the two relations above alluded to; but no one would hesitate to assign the primary importance to its bodily symptoms.

The limits, by which I shall confine my present views, are founded upon the above consideration; and it is my purpose to prosecute an enquiry into the elements of mental pathology, by seeking for them in that class of disorders in which mental symptoms predominate.

Now a morbid state of mind may be said to exist, either where some property essential to mind in its normal state is perverted; or

may 1

where some such property is abolished, or has been congenitally deficient.

The first class of these affections, in which these characteristics are found, I shall consider under the term insanity or madness.

The second class, I shall consider under two heads. That of brutality or absence of the moral faculty; and that of imbecility or intellectual deficiency.

"There is no word in the English language," says Dr. Haslam, "more deserving of precise definition than madness; and if those who have treated this subject, have been so unfortunate as to disagree with each other, and consequently have left their readers to reconcile their discordant opinions, yet it must be confessed, that considerable pains have been taken to convey a clear and accurate explanation of this term. Although this contrariety of sentiment has prevailed concerning the precise meaning of the word madness, medical practitioners have been sufficiently reconciled as to the thing itself. So that, when they have seen an insane person, however opposite to their definition, they have readily coincided in opinion that the patient was mad."

In these remarks of Dr. Haslam I entirely concur; and I think I shall act conformably with their spirit, in declining to offer a definition of insanity. Corresponding expressions are found in every language, and are used with a degree of confidence and unison, which in our present state of knowledge will not be advanced into further significancy by any such procedure. How far the inquiry, which has led to this essay, may have helped us on our road to such a definition, remains to be proved.

In order, however, that my reader may be able to decide whether *we* mean the same thing when we use the term insanity, I will follow out the series of phenomena which have appeared to me most characteristic of that state, the succession which they observe, and the laws by which they are regulated.

Let us suppose, then, such a state to have ensued on some one of those mental affections which most frequently occasion it. I shall presently point out how large a portion of such calamities may be traced to the influence of regret or despondency, when memory or expectation suggest to the mind irremediable or inevitable evil.

Let us assume a case in which the former of these emotions is predominant. The order of phenomena in such a case will be as follows. At first we shall observe a certain dwelling upon and clinging to the painful emotion; such as is beautifully exhibited, and reasoned upon by Lady Constance.

> Grief fills the room up of my absent child,
> Lies in his bed, walks up and down with me,
> Puts on his pretty looks, repeats his words,
> Remembers me of all his gracious parts,
> Stuffs out his vacant garments with his form.
> Then have I reason to be fond of grief.

For some time this state is voluntarily indulged in. But pain soon predominates over pleasure, and then there takes place a series of intense efforts to shake off the influence. Meanwhile these efforts are resisted by powerful antagonists, the tendency to regret maintaining the vividness of the morbid feeling, and after a time the force of habit conspiring. And here intervenes that mysterious agency which our physical constitution exercises over the immaterial essence. The hepatic and gastric system is deranged by the morbid condition of the mind, and reacts, augmenting the mental affection. Under these conjoint influences the will seems gradually to lose its efficiency in combating the trains of painful thought, and finally sinks overpowered.

I admit the hypothetical nature of this language, and can only allege, that it tallies with phenomena, which any careful observer may notice. The intense efforts of the unfortunate person on whom insanity is advancing, and the faint and wearied efforts which succeed to these, until *all* efforts appear to cease, and the associating principle acts apparently without experiencing any control from the will, are sufficiently striking. By this time the disease has produced a certain absurd and inconsequent line of conduct, which perhaps excites attention, or perhaps goes on unnoticed, as involving only eccentricity.

This state may be termed *moral* incoherency.

We next, gradually, observe symptoms of delirium, or incoherency of *thought;* and now the existence of insanity is admitted, but often too late for the prevention of some of its most unfortunate results. In the insane, the unsubjected state of their moral impulses to the will may easily be recognised, and often gives to their conduct the character of a dream. Successive impulses take place, over which the agent evidently wields no controlling power, either changing, or mitigating, or inciting. The moral sentiments receive their direction solely from without, and affect the conduct in a manner analogous to that which we often notice in persons of an absent turn of mind, in whom, no operation of will taking place, the character of the individual is often irrecognisable in his conduct. Thus, he will rise in the morning, he will eat, drink, and go about his affairs, without any connection between these acts and that principle in his constitution which contains the power of choice.

The above fact, namely, the suspension of the power of will over the associating principle, may explain much of the disorderliness of thought observable in the insane. But will it explain all the phenomena of the insane state? Can it account for false perceptions? I shall proceed to a cautious enquiry into this subject. What do we notice as taking place, when we exert a power, which we certainly possess, of disengaging the mind from the influence of will, and allow the current of thought to proceed without interference? Let any person who has ever sat figuring to himself images and pictures in the embers of the fire, or in the passing

cloud, answer this question. Why, in a short time a tendency will be perceived by him rising in his mind, to give a real existence to these productions of the imagination,—to give to its conceptions the force and truth of perceptions. The fringed edges of the burning coals are already battlements, the warm undulating glow of the fire behind is the wavy crimson of the setting sun. He yields himself to the perception of the landscape thus given him. As the next step, he will observe a tendency in his trains of reasoning to connect themselves with these objects in their *new* capacity. This stamps additional reality upon his false perceptions, so that the objects themselves, when they recur to his senses, recur in their acquired character, which the above process has given to them. For further illustration of this procedure, I would advise any one to listen attentively to the waking and spoken dreams of a castle-building child.

Now let us only suppose the procedure which I have here described to be attended by a total inability to rouse ourselves out of the state described, by any effort of will upon the operations of thought, and we have before us a state such as our experience tells us is at least identical with the insane state.

It will be observed, that much of my reasoning on the above point flows similarly to that by which the operations of sleep and dreaming are explained by Mr. Dugald Stewart. These states have, in truth, always appeared to me to possess a striking affinity to that of the insane,—with this important difference, that there is a constant readiness in the mind to be roused out of the sleeping or dreaming state, but no such readiness to emerge out of insanity, when once incurred. And again, that in sleep every voluntary action is suspended; whereas in madness, the will acts with considerable force, though in a more limited extent, than in the sane state. Thus in a sane state, we are conscious that we can in some degree will a train of thought, as well as a consequent line of action; but the insane person to all appearance has only the latter or practical will. Thus his actions are ungovernably violent; the decisions from which they flow unstable and uncertain; over *them* he has no power of choice. In the first case, then, will is efficient on human conduct in two respects; in the latter case only in one. When an effort has been resolved on in the chaotic chamber of the insane man's brain, he can will its being carried into effect; but the preceding process which determines what that effort shall be, takes place independently of his volition.

If, then, we compare in these points the phenomena of madness, of sleep, and of a man's ordinary state, they may be described in the following manner. In the last of the three cases, we have the train of successive thoughts influencing indeed the will, but also influenced and moulded by a process of will, and finally occasioning such conduct as suits the decisions thus arrived at. In the insane state we find the will active *only* in executing the decisions of the associating principle; we observe no such reaction, no such

power of controlling that principle, as exists in the sane state of the waking mind. As far as we can trace the operations of mind into the sleeping state,[1] the power of will seems then suspended equally in regulating the course of our thoughts, and executing the designs to which they lead.

The difference generally assumed to exist between the delirium of phrenitis and that of insanity is intelligibly explained on the above supposition. In phrenitis, or inflammation of the brain, the influence of the will is mastered by the intense and turbulent action of the associating principle; it is overborne, as it were, by the current of thought; but, when the physical excitement of the inflammatory process, and the corresponding activity of thought have subsided, the will resumes its power, and the associations proceed in their ordinary flow under its control.

The case is different with insanity. Here the remission of delirium does not appear to involve any re-assumption of the power of the will over the trains of thought; though no longer turbulent, they remain unregulated, as long as the disorder lasts. This is what might be expected to happen under the supposition that insanity is a disorder of the will itself, and phrenitis a disorder of some other principle or principles, the lesion of which may disturb the will, and temporarily suspend it in the course of such disorder.

I have limited myself in the above remarks to the disorder of the will, as the mental element implied by insanity. If under insanity the associating principle act independently of the restrictive or impulsive influence of the will, it must follow, that the judgment also must be constantly wrong, or to speak more correctly, must be wrong or right by accident. On the other hand it would be an assumption palpably unwarranted by that consent of mankind, which ultimately determines our use of language, if the errors of judgment were represented by me as proving the existence of insanity.

In regard, then, to the question, what is insanity? I answer that it is a morbid state to which those persons are subject in whom the power of volition is feeble, when they are placed under the influence of certain mental and physical causes which I shall next endeavour to enumerate.

[1] Vide Appendix. Note I.

CHAPTER II.

Moral causes of insanity, and their contraries, moral and intellectual—Moral causes and preventives of insanity, to be found among passive moral conditions, not active principles—Passive conditions of the moral department of mind considered—Regretfulness leading to despondency and disappointment—Fearfulness and its kinds—Deficiency and completeness of moral faculty—Selfishness and kindliness—Sympathy—Relation of the above *states* to *active principles*—Analogy between insanity and double consciousness—The latter state *apparently* produced by mesmerism.

I have endeavoured, in the last chapter, to draw up a statement of the phenomena, and their order of occurrence, which constitute an attack of insanity. I proceed to a consideration of those states of the human mind, as well as their contraries, under which the influence of the will over the succession of our ideas is most likely to be so situated that insanity should supervene.

Much of my reasoning on this subject must be deductive rather than inductive. The recognised facts are few in number; and it is my humble purpose, rather to construct from them an hypothesis, by means of which the depths of the subjects may be explored, than at present to aim at this object.

The human mind, in its waking state, at least, may be considered as traversed by an uninterrupted succession of thoughts. The influences which modify this succession may be viewed from different sides of the subject. The method of contemplating them, which best suits my present purpose, is under the two-fold division of moral and intellectual influences.

The latter head may be understood as appertaining to the recognition of truth and falsehood, of reality and unreality in things; the former as having reference to our tendencies to like or dislike.

The relation, in which these two heads are placed by nature, is beautifully illustrated in that division of the human mind under which Aristotle contemplates it, either as "involving in itself the exercise of reason," or as "obedient to reason."

This account gives clearness to our conception of the thinking and emotive department of the mind, in their relation to that element, which forms the essence of the first, and was intended to be the director of the last, namely, Reason.

I shall first consider the emotive properties of the human mind, as far, at least, as they may appear productive or preventive of insanity.

The arrangement of these properties, which seems to me most favourable to such an enquiry, is that which classes them under two heads; namely, such as lead to action and imply an exertion of will, and such as are capable, indeed, of influencing the will, but do not *imply* any exertion of it. The first are active principles, the second are states and conditions of the mind. For this division

I am indebted to that adopted by Mr. D. Stewart, in his "Moral Outlines," and developed in his beautiful lectures "on the Active and Moral Powers of Man."[1]

The above distinction is important to my present views, if I am correct in supposing, that the moral causes and preventives of insanity are to be looked for among the passive conditions of the mind.

Thus it is not to the love of power, or of riches, or of praise that insanity can be directly traced, when it springs up in the course of these several pursuits; it is to the regretfulness, the despondency, the timidity, the anxiousness, some one of which qualities, or of the others above noticed, will be found in the character in which the disease breaks out. The active principles, which may possibly be in play at the time, give occasion to the influence of these passive states; but they are not themselves causative of insanity.

The truth of this position will best be appreciated, when we shall have examined the passive states of the human mind in their relation to our subject.

Now the first of these passive states to which I shall draw my readers' attention is one, to which I shall give the name regretfulness.

Our ordinary impressions in regard to this state of the mind illustrate a very common tendency in morals, to take a prominent species of any habit of mind, as a representative of all the species, which fall under the genus; and to give to the genus itself a good or bad name according to the impression which we entertain in regard to *that* prominent species. Now repentance is a species of the habit under consideration. And it certainly happens, that the virtuousness of *repentant* regrets lends a false and mischievous value to the general practice of indulging the whole class of emotions, of which this is a kind. We are too apt to extend that complacent feeling, with which we regard him, who regrets a fault, to him, who labours under that feeble cast of character, which disposes some persons to wish every thing undone that has been done by them; which seems indeed to give a different and less advantageous colour in their eyes to every action, as soon as it has been performed, however excellent it may have appeared previously to performance.

If, as I have above suggested, a loss of the regulating power of will over the trains of our thoughts is a characteristic of insanity; if, again, a ceaseless pondering over a painful impression tends to shake this supremacy of the will; and, finally, if regretfulness implies this process; it may fairly be expected that the presence of regretfulness in any given individual should contribute to the production of the insane state.

Accordingly this condition of the human mind appears to furnish

[1] Vide Appendix, Note II.

the moral basis of insanity in unnumbered cases; and, perhaps, it affords the semblance of a final cause for this ruthless visitation.

A man thoroughly imbued with the tendency to regret, must find a sort of miserable relief in the insane state; inasmuch, as that intensity of anxious contemplation, which characterises the regretful, ceases, when the whirl of insane associations sets in.

The tendency, which I have above noticed to confound the noxious oscillations of regretfulness with the effects of penitence, sometimes occasions a very mischievous result in regard to mental soundness. Those whose duty it is to advocate repentance, are sometimes deplorably ignorant of the philosophy of mind; they overlook the fact, that, while some of their followers require, indeed, a fuller development of their tendencies to regret, others are actually labouring under a plethoric state of that tendency which *their* incautious admonitions may stimulate into yet more active energy.

Thus while the teacher intends to recommend a virtue, he is in such cases fanning and encouraging a morbid element of the human mind. His *patient's* regretful feelings do not want additional intensity. They only ask to be supplied with motives, and reduced into principles.

In truth, even if left to its natural pruriency, and not cultivated by ill-applied art, regretfulness is in many respects almost antagonist to a virtuous frame of mind.

For, as every thing excites in persons thus constituted one miserable wish, that it were but undone, so the points of conduct which really call for deep reflection with a view to amendment, are lost sight of in the innumerable small regrets, which stick, like the darts of Bandilleros, in their moral skin.

Besides, when the disposition has once gained this power over him, the only resource which the unhappy sufferer can find, is to tear his mind entirely away from the past, and to obliterate the association, instead of rendering it profitable with relation to future conduct.

As that element of the insane constitution of mind, which I have just considered, relates to past events, so that to which I proceed relates to future and expected events. Again, as regretfulness conduces to a morbid state of mind through the presence of a given quality *in excess*, so that state, which I have now to consider is, on the contrary, one of negation. I shall call it the deficiency of hopefulness.

Now, this deficient state of the aspirations has an injurious effect on the human mind, as it implies two separate results in regard to character, despondency, and disappointment.

That a tendency to the former of these states must take its origin in deficiency of hope, will, perhaps, be readily granted; but a little consideration will make the same fact equally obvious in the latter case.

Let us consider for a moment the hopeless character in its relations to disappointment. At first sight, a conclusion different to

mine might suggest itself. I may be told, that the person who is slow to hope is little liable to frustration. But let us turn for a moment to the sanguine man. Is *he* ever a *disappointed* man? He may, it is true, undergo a disappointment, but is he ever in a disappointed frame of mind? Who has not observed the shifting horizon of the sanguine? No sooner is one fairy vision dissipated, than another takes its place as bright and gleamy as its predecessor. "The full of hope, miscalled forlorn," is the description given by the greatest poet of our day, of those who adventure the service of danger alluded to in that passage.

Such is the state of the sanguine. But what is the state of the hopeless in regard to disappointment? As every action of life involves a preference, the hopeless cannot be without his share of frustrations. They may possibly be less frequent from his want of that energy which supplies objects of pursuit, than those of the sanguine; but, when they come, they are comparatively greater both in actual severity and in duration. For in truth the frustrations of the sanguine are little more than stimulants applied to the production of a fresh scheme. They are lost sight of in the anticipations which spring out of them.

Meanwhile it will be admitted, that the states of disappointment and despondency give that moody dwelling upon trains of absorbing thought, which we have adverted to as conspicuous in the early stages of the *insane* state.

Next in succession as in force to the moral states which I have discussed as the excess of regret, and the deficiency of hope, I am disposed to place fearfulness.

This condition of the mind is indeed so full of pain, and tends also so strongly to detain it in a single channel of thought, that it may at first sight appear to claim equal importance with regret, despondency, and disappointment. Experience, however, has not authorised me to give it this position, and the conclusions of experience are conformable to the philosophy of the subject. For the operations of fear are deficient in regard to one condition, which adds powerfully to the influence of regret, despondency, and disappointment. The objects of fear possess nothing attractive; nothing that can keep our associations enthralled, except that which would *repel* us, but for its importance.

The chain that ties our thoughts to the cause of our fears is a single one, the sense of danger. That which keeps our attention fixed on the cause of our regrets, is a double one, compounded, indeed, of the emotion of grief, and a remains of attachment to the object, of which we are deprived.

In the first case, our efforts to resist the intrusive feeling, are not, as in the latter case, defeated by the treachery of that feeling.

If any one, indeed, will analyse his own emotions under the influence of regret, he will recognise in them two distinct stages. The first will be *simple* grief; the second stage is grief accompanied by an endeavour to realise to himself the lost object, as if it

were still possessed. Now grief, where it exists, uncombined with this mental process, soon finds that merciful cure which time affords. But the re-action of thought, which follows the fruitless effort, which we have thus contemplated, renews its keen and bitter feeling.

We shall presently notice the assistance which the mind receives towards indulging this miserable process from the imagination.

With respect to the modifications of fear, they are as various as the objects of human regard, and the sensibilities of the human character. Personal fear is probably the most intense and overpowering. The fear of poverty, the apprehension of disgrace, the dread of responsibility, and of public display, each have in turn shaken the mind, and produced forms of monomania. The operation of these agents is perfectly consistent with our theory of insanity. Personal fear is, as we have observed, the strongest of them all. But it wants generally, except in regard to a future state, that enduring quality which should enable it to usurp the power of will. The apprehension of responsibility and of disgrace is more frequently productive of the disease. The dread of poverty keeps a grim spectre constantly before our eyes which has in many instances taken out of our hands the reins of thought.

I know not how far I may be considered erroneous in throwing under the same head the emotion of fear in regard to ignominy, to poverty, and to personal danger. They seem to me to have common points sufficiently marked to warrant this arrangement. There is a physical and moral shrinking under all these emotions which may well unite them. Let a man be told that he will lose a sum of money, which is of importance to him, he turns pale, his breathing becomes quickened, his hand less warm. But these are also the phenomena of personal fear, though less intense in degree, as men are ordinarily constituted.

In prosecuting the general division, which I have borrowed from Mr. D. Stewart, I have neither restricted myself to his enumeration of properties, nor to his assignment of those which actually form a part of his system. Thus the property, which I have next to consider, constitutes one of Mr. Stewart's active principles; to me it appears to deserve a place among the *passive* conditions of the mind. I advert to the moral faculty.

It is true, that in regard to the choice both of objects and of means for their attainment, conscience affords its sanction or its disapproval. But the two elements which appear essential to an active principle, namely, desire of an object, and energy in its pursuit, must, in all such cases, conformably with the common use of terms, flow from some other source. Thus, the active principle, which desires power and pursues it, is called ambition. But among the crowd of its appropriate objects, and of the means for their attainment, the choice of the ambitious is submitted to the authority of conscience, according to the extent to which this prin-

ciple may exist in their minds, either naturally or as developed by cultivation.

The description admirably given by Dr. Butler of benevolence, would seem to require us to place this also among the passive conditions of the mind. But as there is clearly an active principle, popularly distinguished by that term, I prefer the expression, kindliness, for that passive condition, which is the opposite of selfishness. As selfishness inclines us to find our pleasure in what promotes our own interests, so kindliness inclines us to find our pleasure in what promotes the interests of others.

As conscientiousness, or the large development of the moral faculty, tends to make a given act seem eligible, because it is agreeable to our sense of right, or pleasing to God ; so self-love and kindliness tend to make an action eligible, because it is expedient, the first in relation to ourselves, the second in relation to others.

I mean, then, to express by selfishness that state of mind which occasions us to find our enjoyment in any given line of conduct as serviceable to ourselves, and not as serviceable to others. Now this is a state highly predisponent to insanity, since it gives ample food to a noxious principle, which we have already noticed, namely, the tendency to regret and disappointment ;—and that on principles which will readily be admitted. The wishes of a selfish man, to be a source of gratification to him, require the achievement of some definite object ; and this, of course, he cannot always secure. The wishes of the benevolent, on the other hand, are accomplished, sufficiently, at least, for a large amount of gratification, if he can satisfy his mind that he has done his best. But it is unnecessary to enter into any proof of the fact that our endeavours are more within our power than their success can be. Thus the stoics placed happiness in the possession of their good and wise man, because they supposed him to be concerned only with his pursuits and avoidances, and not with any definite acquisition ; justly appreciating the fact, that happiness should be placed out of the reach of fortune, except our endeavours.

I have next to consider the relation of the *moral faculty* to the subject of madness. When of sufficient strength to predominate over conduct, it is indeed a powerful antagonis , as lessening the number of our regrets. And this point it effects, not merely by the preference which it may be supposed to produce of right conduct over wrong ; but also by contributing to the formation of a general principle which is very rarely laid hold of by the mind, the principle of acting or abstaining from action because it is right. Men do not readily feel the pangs of regret when they can refer the point of conduct to *any* settled rule. Dirk Hatterick's regrets were tranquillised by the reflection, that he had adhered to *his* one principle, namely, the keeping faith with his ship owners. How much greater must their freedom be from regretful emotions, when they find their conduct in unison with a principle with which the sympathies of human nature are in strict harmony.

When sparingly developed, the moral faculty has a very different effect on the mind: many of those persons, in truth, who are pitied for an overwrought conscientiousness—a mind too fine for this world—are illustrations of this *defect.* These persons are miserable not from having too much, but from having too little conscience. The uneasy and excited state of the moral sense, which in their case bears the semblance of activity, results from the struggle which it is carrying on, and not from its strength. If this strength were greater, its mandates would be obeyed without opposition. Such we must suppose to be the case in the war between conscience and antagonist tendencies which may often be noticed in the selfish man.

Agreeably to this view, we must admit the truth of a very paradoxical remark; that selfishness in combination with a sparingly developed conscientiousness is more productive of misery than unmixed selfishness. "If a man," says Mr. Hume, "be liable to a vice or imperfection, it may often happen, that a good quality which he possesses along with it, will render him more miserable than if he were completely vicious. A person of such imbecility of temper as to be easily broken by affliction, is more unhappy for being endowed with a generously and friendly disposition, which gives him a lively concern for others, and exposes him the more to fortune and accidents. A sense of shame in an imperfect character is certainly a virtue, but produces great uneasiness and remorse, from which the abandoned villain is totally free."

The property which I shall next consider, in its relation to the insane state, seems wisely classed by Mr. D. Stewart among the principles *co-operative with* our active powers. It is called sympathy.

Under that passive condition of the mind, which this term expresses, and according to the extent to which it is developed, we find ourselves going along, readily or unwillingly with the emotions of other men. That there *is* a property of this kind in our moral constitution, independent of the emotions themselves, is probable, from the readiness with which we see persons of very feeble affections roused to their display, when such affections are exhibited in their presence. Parasitical as this condition of the mind may appear in the above point, it is implanted for a very wise purpose. For, as it can raise, so also it can lower, the tone and rapidity of passing emotions, and of the associated ideas which spring from them. Thus, in cases of intense excitement, in which the influence of the will may be regarded as wavering, and almost suspended, the power of sympathy is capable of re-adjusting the almost destroyed equilibrium; and the turbulent operations of the heart and the understanding yield to the influence of the "impartial spectator."

Now, it would appear, either that the insanely *predisposed* are peculiarly deficient in this principle, or that insanity tends to weaken its efficacy, in those who are afflicted by the disease. This opinion is principally based on the following apparent facts.

First, that in the insane there is invariably a diminished state of

those natural affections, which require sympathy for their full development, and these are the kindly ones. While, on the other hand, most persons retain their full capacity for the evolution of hatred, anger, and uncharitableness, properties which require no assistance from sympathy.

Secondly, that the supposition affords a practical diagnostic in insanity. In many persons thus situated, in whom, at the time at which the enquiry is made, the reasoning powers are in a clear and sound state, and whose emotions are at the time flowing evenly and quietly, we are enabled to detect disease, by observing, that the patient is not going along, or sympathising with us, or, indeed, with any one extrinsic to himself. Perhaps his conversation can only be characterised as morbid, by its remarkable want of relation to all that is passing in the minds of by-standers. In this point, indeed, the insane are remarkably contrasted with the inebriated, whom, in many respects, they greatly resemble. Persons in the latter state overflow with sympathy, and carry it to a ridiculous and maudlin extent.

Such are the mental conditions, which appear to me favourable to the production or the prevention of this mental disease. The above enquiry, which has placed them among the passive states of the mind, suggests an answer to the question, why I have not also attributed insanity to some one or more of the active principles of character. Men may experience love, or ambition, or cupidity; they may over-stimulate themselves under this powerful agency into apoplexy or phrenitis; but they do not go mad, as far as mental causes are concerned, unless they have, for the companion of their way, some of the fiends which I have noticed, or want some of the protecting influences which are afforded by a just regulation of those very qualities, which I have described as mischievous in their abuse.

If unavailing regrets, if hopelessness, and either of its consequents, disappointment or despondency, if fear, in any of its varieties beset us—if the moral faculty be not strong enough to supply us with fixed principles of action,—if a large development of self-love afford us its appropriate source of regret, and if our moral constitution has rendered us unsusceptible of influence from sympathy, we are dangerously situated *quoad* insanity, whatever may be the vigour or the feebleness of those elements in our characters which lead to active pursuits. With respect indeed to feeble characters, by which term is generally meant persons with no strongly predominant principle of action, in such persons a regretful or timid disposition occasions a state of continuous suffering almost equivalent to that which results from the failures of the energetic, while they never enjoy the wholesome stimulus of success. Miss Edgeworth's delineation of Lord Glenthorn is an admirable commentary on the dangers of ennui.

On the other hand, in tracing out the above described differences between the active moral principles, and the passive conditions of

the mind relatively to insanity, I do not mean to suggest, that the excess in which the former may possibly be developed, is a matter of small import. A regretful person, though sure to find food for that tendency, whatever his pursuits may be, certainly becomes more liable to regrets, if he labour under intense ambition or avarice. Indeed, all those properties which I have placed in close relation to insanity, require, for their healthy state, even and well balanced appetites, affections, and desires.

It is probable that the above enumeration may be far from exhausting the moral causes of insanity. There is even much difficulty in adducing proof that the above are among the conditions of this morbid state. The painful feelings of mankind on this subject make it difficult to publish the moral dissections of individual characters. We must be contented to rest our case upon the opinion of those, who have had opportunities and inclination to investigate for themselves.

Among the more obscure and dubious topics, out of which light may at some future time be shed upon this mysterious subject, the following perhaps deserves a place.

There is a morbid state of the human mind admitted by pathologists, under which the patient lives in alternate stages, as it were, of two different beings, in regard to the sequence of his thoughts, and the operations of his intellectual and moral properties. The one is easily recognised as his normal state. It exhibits the ordinary phenomena of his character and habits. In the other he appears to have undergone a remarkable change. He has forgotten things and persons, or views them in perfectly new lights. The current of his thoughts verges on delirium in rapidity and excitation. Sometimes there appears in him more force and vivacity of intellect in his paroxysmal state, than was observable in his original character. From each of these states he drops suddenly into the other, and he has no clear recollection in the one, of subjects which had interested him in the other. This morbid state, to which the name double consciousness is usually given, has a considerable affinity to the intermittent form of madness; so much so, that it seems not unreasonable to suspect that their laws of causation may have some common points. Now, unless the system of Mesmerism,[1] which has recently been brought before the British public, be a system of simulation and collusion, we have here also a form of double consciousness, which those who have seen the experiment made during the spring of 1838, at a London hospital, will admit to have exhibited this affinity in a high degree;—*and this form of double consciousness is voluntarily brought about by external agency.* On the principles which regulate this agency I have nothing to say.

The facts, indeed, produced by the professors of this new science, should be kept carefully distinct from the various hypotheses, on

[1] Vide Note I.

which they have at different times been based. The latter may be erroneous and absurd, while the former may be undeniable. If true, these facts constitute a remarkable epoch in the history of the nervous temperament. If false, they involve marvellous imposture, and leave us in a state of profound distrust at the evidence of our senses.

The subject has not yet obtained the scrutiny which it deserves. To such a scrutiny I must observe, that apparent deviations from the order of nature ought to oppose no obstacle. It is probable that some improbable phenomena should turn out to be true, if ever it should be given us to fathom the laws to which the phenomena of mind are subjected.

The necessary antecedents to an attack of insanity are hidden from our view at present behind a veil more impenetrable than is thrown over any other disorder. If Mesmerism should help us to a partial removal of this veil, it will have done much. The discovery of a cure in disease is most likely to be effected through a discovery of its cause.

CHAPTER III.

Intellectual properties, active or passive—Active intellectual properties favourable to mental health: insufficiently appreciated in this point—Why?—Application of them by the patient to his own case—Rev. Robert Hall.

The same distinction which we have noticed in relation to the moral department of the human mind, may be applied to its intellectual properties. They also may be viewed as active principles or passive states.

We are so constituted that a current of associated ideas must flow, without any agency of our own, through the mind. We can enlarge its channels or divert its course; but the stream pours on spontaneously, and is so far independent of our will.

It has been observed above, that an adequate development of active moral principles is requisite to mental health. An absence of them would leave human nature a monotonous blank. They are wholesome in their modified state, and not necessarily mischievous in their more energetic forms.

Much more than this may be said in favour of the active intellectual principles. These are not merely consistent with mental health, but also highly preventative of mental disease. This is generally true of the faculties of observation, of judgment, and of reasoning, deductive or inductive. The faculty of observation may be made available towards even the removal of actual insanity. No one, who has witnessed the temporary mitigation of insanity produced by the studies to which this faculty leads, can doubt its efficacy. A flower, an insect, or a mineral, have often beguiled the

restlessness of that disease into temporary self-control, when the mind had been previously imbued with a taste for such pursuits. But every exertion of the intellect has in truth its own delight; and all are beneficial in kind. Again, the pause from intellectual pursuit is itself full of enjoyment. It is rest. That from moral emotions is languor; and, in ill-regulated minds, it is ennui.

The same remark applies to the active operations of the intellect, which we have formerly made in regard to the benevolent affections; and it has an equally close connection with our present subject. *They* do not depend for their gratification upon success in the pursuit of their objects. Their labours are their reward. Probably the happiest men in existence, "sua si bona norint," are persons engaged in literature and science as an employment. It is to be regretted that they are not always sufficiently aware of the above remunerative points in the nature of their exertions. The reason of this is probably to be found in the extensive tendency of those who conduct the education of our youth to encourage ambition as the principle motive to such exertions—How can that boy learn to value the luxuries of science or literature who is only taught to appreciate them as a means of obtaining applause?

There may be, and in some cases I have witnessed a very beneficial use of intellectual power in averting insanity, when the patient has been able to apply the resources of his understanding to the regulation of his mind under a consciousness of his own predisposition. It is needless to observe, that the possession of very high talents is presupposed in him who can be entrusted with such an application of his intellect. But insanity constitutes no exception to the great law of our nature which in some degree places in our own hands the remedies of all the diseases with which we are visited. The modes in which the patient may be taught thus to minister to himself, will be considered in another part. I cannot forbear introducing here some extracts from a beautiful letter, in which the late Sir James Mackintosh at once recognises the possibility of such surveillance of self, and ascribes it to an illustrious, though unfortunate friend.[1]

"That the mind of a good man," he observes, "may approach independence of external things, is a truth which no man ever doubted who was worthy to understand it: but you, perhaps, afford the first example of the moral nature, looking at the understanding itself as something that is only the first of its instruments. I cannot think of this without a secret elevation of soul, not unattended, I hope, with improvement. You are, perhaps, the first that has reached this superiority. With so fine an understanding, you have the humility to consider its disturbance as a blessing, so far as it improves your moral system. The same principles, however, lead you to keep every instrument of duty and usefulness in repair, and

[1] The Reverend Robert Hall.

the same habits of feeling will afford you the best chance of doing so.

"We are all accustomed to contemplate with pleasure the suspension of the ordinary operations of the understanding in sleep, and to be even amused by its nightly wanderings from its course in dreams. From the commanding eminence which you have gained, you will gradually familiarise your mind to consider its other aberrations as only more rare than sleep and dreams; and in process of time they will cease to appear to you much more horrible. You will then be delivered from that constant dread, which so often brings on the very evil dreaded; and which, as it clouds the whole of human life, is itself a greater calamity than any temporary disease. Some dread of this sort darkened the days of Johnson; and the fears of Rousseau seem constantly to have realised themselves. But, whoever has brought himself to consider a disease of the brain as differing only in degree from a disease of the lungs, has robbed it of that mysterious horror, which forms its chief malignity. If he were to do this by undervaluing intellect, he would indeed gain only a low quiet at the expense of mental dignity. But you do it by feeling the superiority of a moral nature over intellect itself."

It is, perhaps, unnecessary to notice how high a strain of intellect that man must possess, who can reason himself into the conviction which this last sentence expresses.

But in order that we should be able to prosecute the operations of the intellect without danger from exhaustion, (a danger which leads to results more belonging to the head of Imbecility, than of Insanity,) we are benevolently provided with another faculty, which it will be my business next to consider.

CHAPTER IV.

Imagination, that property by which we recognise absent objects of perception, either such as they are witnessed in nature, or broken up, and re-compounded—connected both with the intellectual and emotive departments of mind—with the *intellectual* department, either as illustrating, or as supplying hypotheses.—Favourable to mental health in the above operations.—No corresponding benefit from imagination relatively to the *emotive* department.—Not, even, when our feelings require to be heightened.—This illustrated in the cases of courage.—Of benevolence.

The meaning generally conveyed by the term imagination, is expressed in the following passages of Mr. Dugald Stewart.[1] "The province of imagination is to select qualities and circumstances from a variety of different objects; and by combining and disposing these to form a new creation of its own." Again, "The nature and

[1] Elements of the Philosophy of the Human Mind, vol. i.

province of imagination are most clearly exemplified in the arts which convey pleasure to the mind by new modifications and combinations of beauties originally perceived by the eye."—The property, to which I shall assign this name in reference to my present subject, is that, by which we are enabled to recognise absent objects of perception, as if they were present; either such as they are witnessed in nature, or broken up, and recompounded into new combinations.

This property has a very important relation to the morbid state, which I am considering. To which department of the mind it principally belongs, is a question which I need not, at present, discuss. That it influences each, is a fact requiring no proof.

It happens, however, that the connection of this property with the emotive department of the mind has received a much more careful scrutiny and discussion, than that which it holds with our intellectual powers. But it is important to my present purpose, that the latter connection should be appreciated as completely as the former.

The connection of the imagination with the intellectual faculties is twofold. First, it affords illustrations, by which the processes of thought are cleared up. Secondly, it (often) affords body and substance, as it were, to the thoughts themselves. This end it accomplishes either partially, by single terms, or wholly, by obtaining from its storehouse of imagery the materials, by means of which the entire view may be evolved, and presented to the judgment.

A better illustration of its latter effect can scarcely be afforded, than that which the following passage suggests; in which the eminent writer describes some characteristic points of Sir Humphrey Davy and Mr. Michael Faraday. "All great steps in science," says Mr. Whewell, "require a peculiar vividness and distinctness of thought in the discoverer. Both Davy and Faraday possessed this vividness of mind: and it was in consequence of this endowment, that Davy's lectures upon chemistry, and Faraday's upon almost every subject of physical philosophy were of the most brilliant and captivating character. In discovering the nature of voltaic action, the essential intellectual requisite was to have a clear conception of that which Faraday expressed by the remarkable phrase *an axis of power having equal and opposite forces:* and the distinctness of this idea in Faraday's mind shines forth in every part of his writings. Thus he says, the force, which determines the decomposition of a body is *in* the body, not *in* the poles; but for the most part he can only convey this fundamental idea by illustrations." . . . .

Now here we find it recognised by Mr. Whewell, that certain ideas, appertaining to science, would want that expression, which gives them a tangible character, if I may say so, and makes them available to its purposes, but for the exercise of a faculty, which I shall presume to denominate imagination, as agreeing with the most definite sense in which this term is applied by philosophers: operating in "the vivid mind" of a Faraday or a Davy by a process

analogous to that, which the painter exercises upon *his* absent objects of perception, it re-combines the materials thus obtained; and finally constructs that hypothesis, which experiment must afterwards verify or confute.

But whether we contemplate the imagination in the last-mentioned relation to science, namely, as conveying fundamental ideas, or view it as merely suggesting illustrations, in either case one fact holds good with regard to it, connecting it practically with the subject of mental disease. In so far as our supposition is well founded, that the operations of the intellect are calculated to prevent mental disease, in the same degree must that faculty be valuable, which extends our capacity for such operations. That the operations, which we have described as introduced by the imagination into discursive processes, must *lighten*, as well as promote these processes-is also very obvious. Simple change in the *nature* of an exertion, can obviate fatigue, and repair power. But here, we find not only a *new* but a *less laborious* process introduced.

The benefits derivable to the mind from habitual exertion of the understanding, could not be reaped, for very exhaustion of the thinking power, but for the subsidiary agent thus kindly afforded to us.

There is nothing analogous to this alternate play of reason and fancy, in the effects of the imagination on the *emotive* department. The *feelings* experience no mitigatory influence from its presence. The topics which they draw from this source, rather add fuel and intensity to their action.

To this it may be answered, that, in some cases, our emotive tendencies *may* require to be heightened, as well as to be tranquillised: and that, in such cases, the effect of imagination may be favourable to the just equilibrium of the human mind. Thus, if hope, if regret, if resentment, if the love of approbation and the desire of property be too feeble in a given case, they may be stimulated into such activity as the health of the mind requires, by that power of fancy which shall make all the objects of these properties respectively wear their brightest tints. The moral philospher may however doubt, whether, in this event, the desired equilibrium is gained under circumstances likely to render it either permanent or beneficial. Our feelings, when rendered energetic by the aid of our imagination, are constantly liable to place us in a false position, by breaking down at moments of difficulty, and leaving us unable to advance, when it has become too late to retreat. Take, for an example, courage. The annals of military life would afford more than one instance of failures thus produced; and failures of this kind are peculiarly conducive to the insane state. Such failures indeed may easily take place. A love of honour and a burning sympathy with the applause, which men are disposed to confer on indifference to danger, will afford incentives to a military life sufficiently powerful to overcome constitutional timidity, if duly aided by a vivid imagination. In such a mind, it will bring forward in bold relief all that

is graceful and beautiful in war, all that peculiarly concerns glory and success, and the acquisition of excitement. Horror will disappear, overshadowed, as it were, by her own plume. Then comes the day of miserable development; when, after a thrilling effort to assume a virtue, of which nature has denied him the elements,—the unfortunate admirer of heroism wavers, faints, and gives way in his unhappy pursuit of it.

Without any corresponding mischief to the *sanity* of the mind, a corresponding failure in moral results is often observable, where benevolence obtains its stimulus from the imagination. The person thus excited is disposed to succour *not* the real sufferer from penury or distress, but the object which his fancy has dressed up in the *picturesque* colours of misfortune; and often, when real misfortune comes before him, he turns disgusted from its loathsome accompaniments.

CHAPTER V.

Relation of Phrenology to the Science of Mind considered.

In a disquisition which proposes to enquire into the elements of the human mind in relation to its morbid states, it is not easy to leave the views of the phrenologists absolutely untouched. Since, if they are right, or I may say, so far as they are right, they ought to throw valuable light on the causes of mental disease.

There is certainly in the character of the phrenologists themselves one feature, which should attract the attention of a philosopher independently of the subject matter of their pursuits. They are pains-taking, laborious men, prosecuting their views among accumulated facts, or what they consider to be facts, in a subject, to which *à priori* reasoning has hitherto been far more commonly applied.

In this respect, indeed, they are somewhat hardly used; for, while they receive on other and more reasonable grounds, their full meed of blame, they are constantly assailed with the epithet, "speculative and theoretical."

Surely, if the rapid formation of a system had been their object, they would have gone to work in a very different way. We should have seen them classing under a few elements all the phenomena of mind; in short, dealing with the mind as the ingenious author of the Brunonian theory dealt with the body.

But the phrenologists appear to have been forced into an hypothesis by accumulated observation, and being remarkably deficient in the faculty of generalising, they have thrown their work into a great number of detached pigeon holes, and have separated very arbitrarily into small parcels, what more skilful theorists would have collected into larger masses. This procedure has laid them open to much ridicule. But, as it is opposed to the more dangerous

fault of rapid systematising it in some degree increases the claims of their labours to our attention.

It would, I imagine, be very easy to state the views of the phrenologists, in a form, which would appear perfectly reasonable to those by whom they are derided on the above grounds. The facial angle of Camper has long ago directed our attention to the shape of the head in connection with the manifestations of intellect; and again, the connection between our intellectual and moral departments would dispose us to accept with attention the evidence of their having a common organic agent. But, if we think and feel through the instrumentality of the brain, we shall probably think and feel agreeably to laws, which will imply one kind of action in the brain one operation intellectual or emotive, another for another; and it is far from improbable that this difference of celebral action should be connected with a difference in the fibres appropriated to each function, or in other words, with a difference in the parts of the brain relative to each. On this basis, the general principle of a division into organs might be erected without any antecedent improbability; and if the divisions of Gall appear unphilosophically minute, it would be easy to reduce them into more general heads, without interfering with the location assigned to them by their discoverer. Viewing them, indeed, in groups according to their juxtaposition, we shall often find that a generic character prevails such as the experience which we possess of the human mind would lead us to expect. Thus benevolence and imitation (organs which touch each other in the phrenological map) embody the great principle of sympathy. Again the elation of spirit, the self-congratulation which men experience, when the witness in their own breast commends them, is the same emotion differently exerted, with that which elevates the successful competitor for public applause. These organs accordingly are in contact. Hope, veneration, wonder and ideality constitute a mass of contiguous organs, which might easily be taught under common metaphysical principles. It would be easy in other instances to soften off the hard distinctness with which Gall and Spurzheim have split the cerebral mass. Their comparative neglect to do this for themselves, may well be accounted for, if their statements are true, by the marvellous individual facts, which seem first to have drawn their attention to the subject, and kept them entangled in its details.

One of the most frequent topics employed against them is furnished by their mistaken judgment in regard to character. And this appears to me to be pressed against them with some want of candour, though perhaps, they have injured their own cause by injudicious confidence.

It is far from necessary, that they should always be right, to the constituting phrenology a very important help to our acquaintance with character. The basis of their peculiar theory is the size of the brain. The quality of the brain, and the temperament of the individual, must, as they admit, have a large connection with his

character. Let them be met with the allowance due to the enthusiasm of discoverers, if, having substantiated the first of these three elements, they allow it sometimes to occupy more than its just space as the groundwork of their judgments.

With respect to the mistakes of the phrenologists, they may lay claim to the same indulgence, which other mistakes meet with. At all events, from the professors of medical science they might expect to find sympathising criticism. *We* lay down the symptoms of disease; but we do not consider ourselves candidly dealt with, if our repeated failures in diagnosis lay our science under the imputation of charlatanism. And yet it is to be observed, that many of its professors assert the general skill of the faculty in discovering disease, just as confidently as the phrenologists assert *their* skill in the discovery of character.

Of the arguments against crainology obtained from the shape of the brain, as not truly represented by that of the skull, it may be observed, that they are met by contrary affirmations of anatomists; and that after all, they leave untouched the *actual observations* of craniologists, which ought to be the points of interest. Their hypothesis may be erroneous, and yet their conjectures may be generally true. Many men arrive at truth by a process quite different from that, which they suppose themselves to have adopted. The facts of such persons should not be compelled to undergo the punishment due to their reasoning.

But whatever may be the merits of these gentlemen as to their peculiar doctrines, still the science of mind is indebted to them for valuable speculations. Thus, they have thrown a curious light upon certain paradoxes in human conduct, which before their times had not been referred to any laws,—by boldly laying down in their charts attributes, apparently contradictory, as co-existent. Such paradoxes in conduct had previously forced themselves on our minds, and had been viewed as inconsistencies. But there are no inconsistencies under this scheme, which assumes in every individual the existence of all the properties of the human mind, in very different quantities and proportions, indeed, and in many cases strangely antagonised. Flippant gentlemen and ladies laughed, when Thurtell turned out to be at once benevolent and destructive. but the phrenologists had read a page in the book of nature which contains this marvellous provision, and in their homely way they assigned the separate organs. Thus also the simultaneous development of benevolent affections in a given character, with a love of excitement which can find its gratification in scenes of combat is recognised in their scheme.

In placing selfishness and conscientiousness among the passive states rather than the active principles of the mind, I adopt a plan recognised by these philosophers, though different from that of Dugald Stewart. Again, their omission of a distinct principle of memory, which leaves it resolved into its elements, namely, attention and fulness of development of that faculty, in regard to which

the memory is strong,—I am disposed to think an essential service to the science of mind.

In the above remarks, it has been my object, not to support phrenology, but to recommend it to the attention of some who at present deride it; at all events, to prevent its cause from being injured by the awkwardness with which it was at first promulgated, and the dangerous friendship of some of its advocates, to whom I would venture to submit this consideration,—that its claims to extreme usefulness will not be perilled by their admitting it to be fallible.

CHAPTER VI.

Pathology of insanity considered under three stages:—1st. moral incoherency;—2d, moral incoherency continuing; intellectual incoherency superadded;—3d, recovery, or an incurable state.

In the first chapter, I have endeavoured to trace the mental phenomena of an attack of insanity.

For practical purposes, the disease thus characterised may be divided into three stages.

In the first stage the deviation from soundness of mind regards moral conduct.

In the second stage the moral incoherency continues; but intellectual incoherency or delirium has also taken place.

In the third stage, recovery from the above states is proceeding;—or the patient is gradually passing into a chronic state of moral and intellectual perversion.

The prominent features of the first stage are a heightened condition of those moral defects, or excesses, which I have noticed among the causes of insanity. The patient is regretful, he is despondent, he is suspicious, he is anxious on the subject of property, or personally fearful in an increased degree. His imagination is probably in an excited state. The points which distinguish such attributes in *him*, from the same *kind* of attribute in one to whom we should refuse the appellation of insanity are as follows. The extent of his sufferings lose all their accustomed proportion to their causes. The surmises, from which he reasons and converses, are utterly incongruous with those of other men. Thus he is the object of an inconceivable conspiracy. He is noticed and remarked upon by persons, to whom he must be utterly indifferent. A woman of pure and correct mind will suppose herself in love with some person, whom she has never seen, or beloved and persecuted with addresses by some such a person. She will be unwilling to go to church, because every thing that the preacher says, is meant to apply personally to *her*. The kindliness of her character is destroyed, and intense selfishness takes its place. Indeed the blunted state of natural affection is a remarkable trait of commencing insanity. The sequence of her actions becomes in-

congruous and inconsistent. Among all these peculiarities the powerless state of the insane *will* is distinctly traceable. This diagnostic is important in its relation to another disease, with which insanity may be easily confounded; namely, Hysteriæ. It suggests indeed this difference of practice, that the hysterical should be treated as far as is consistent with humanity, as if they could avoid or avert their morbid state; a procedure, which would utterly fail if applied to the insane.

The physical phenomena of insanity are at this stage best understood, if viewed in relation to the temperament of the sufferer. In a former work I have adverted to the doctrine of temperament, as it concerns dyspepsia; I might with greater reason press it upon the attention of the public as it concerns my present subject.

All the physical symptoms of the insane indicate a deviation from the normal state. The bilious exhibit their characteristic evidence of oppression. The leucophlegmatic person is more languid, his heart's action is slower, and his bowels more confined than usual.

The nervous person becomes tremulous, her pulse quickens; the catamenia often becomes excessive, sometimes, intermit; her desire of food is excessive or totally destroyed.

The sanguine, early in this state, exhibit increased fulness, of which however they soon lose the appearance. Insanity is essentially a debilitating state.

Throughout all these temperaments there is a remarkably unwholesome appearance of the skin; it is more dry, less clear and less smooth than usual.

The second stage, or what may be called the stage of development has now to be considered.

Inconsequential conduct has probably continued for some time, the duration varying in different cases; and now the state of inconsequential thought presents itself. The erroneous impressions which have influenced conduct in the first stage, and which even then might perhaps have been traced to false perceptions, are now palpably founded on such impressions. As the patient happens to be more sanguine or more nervous in his temperament, so much the more sudden and acute is this change. It is slower, and more gradual in the bilious, and most so in the leucophlegmatic.

This state is delirium, such at least appears to be the sense in which that term is ordinarily used; namely, as involving inconsequential thought, and false perceptions.

Insanity may be complicated with inflammation of the brain, or phrenitis, particularly in the sanguine temperament. But as phrenitis and insanity having many similar points, require a very different treatment, as a delirium in the above signification is common to both, it is important to consider, how far it is distinguished in each.

Now, in the delirium of phrenitis, and I might add, of fever generally, so far as any definite ideas or propositions are formed in the mind, they are inconsequential, and so far partake of the character

of insanity. But under the ravings of phrenitis, propositions are rarely constructed. The delirium of insanity disturbs the sequence of ideas, and renders them unsuitable to external objects; but leaves the ideas definite, though erroneous and inconsecutive. Thus the discourse of an insane person will bear to be divided into propositions; that of a phrenitic patient will not. It is a process of ejaculations. Words tumble out casually, and take no logical relation to each other.

In regard to physical symptoms, it may first be observed, that the sensations of the insane are rarely acute. This remark holds good in relation to bodily pain. But even when in a state of moderate suffering, they are subject to intense exhaustion, and easily pass even into the sinking state; particularly persons of the nervous temperament. Long continued sleeplessness places the insane in much danger.

Extreme constipation, to which the insane are very subject, seems often to depend upon their physical in irritability. It is more common in the bilious and leucophlegmatic.

In regard to medical nomenclature, I should, in deference to the common use of terms, confine those of *mania* and *melancholia*,—the first to the insanity of the sanguine and nervous, the second to that of the bilious. This division leaves no accredited name for the insanity of the serous or leucophlegmatic. The term *démence*, which, with that of idiocy, completes the French nomenclature, has been appropriated by MM. Esquirol, Pinel, and Dubuisson to another use. They appear to indicate by that term the phenomena developed by insanity in persons of whatever temperament, of small intellect and feeble character, whether naturally so, or from debilitating causes, such as illness or dissipated habits.

The third stage may be considered as differing from the second, as its commencement, in intensity rather than kind. The power of regulating the trains of thought is equally wanting. The falseness of perceptions continues. But the current of thought is flowing less rapidly, and where the case tends towards recovery, the patient can be induced to doubt the justness of his perceptions.[1]

The physical symptoms are modified on the same principle. They are at first the same in kind (but greatly different in intensity) with those of the second stage.

Both these sets of symptoms experience very different modifications afterwards, according to the extent of the disease, and the patient's capacity for recovery. In many the state of quiet desolation with which this stage commences, is permanent. The unhappy patients are irrecoverable. In many again, this state subsides into what is called a lucid interval. The patient is at first supposed to have recovered. But at the end of a term of weeks, he has a repetition of the second stage, and the disorder proceeds upon this

[1] For a happy instance of management, in calling a patient's attention to the unreal nature of her own perceptions, see Dr. Gooch, on "The important Diseases of Women," p. 173.

principle of alternation. This is an unfavourable form of the complaint, but not an incurable one.

In the more favoured cases, in those, in whom it may be supposed, that no change of structure has been worked, during the orgasm of the second stage the powers of self-control are gradually resumed; the false perceptions are rectified, and the patient is restored.

Such is the ordinary progression of insanity. In occasional instances the first stage is so indistinctly marked, that the disorder fails to engage attention, before it has arrived at its stage of development. I may anticipate the subject of treatment by remarking the importance which this fact gives to a careful scrutiny of the moral symptoms of insanity; if, at least, I am correct in supposing, that these are the mental indicants of its first stage. If, in its undetected state, it occasions no formidable outbreak in the form of suicide, or murder, still, it must be admitted, if curative measures avail any thing, that the longer these measures are delayed, the less is their ultimate chance of success.

And how much, (I may observe,) does the common language of mankind on this painful subject bear out that supposition!

How repeatedly do we hear, after the disease has developed itself with direct symptoms of delirium, that incoherency of *conduct* has long been observed! "Insanire putas communia me." the unhappy patient may now say to his friends, "Nec medici credis nec curatoris egere a prætore dati." Meanwhile the disease has perhaps been gaining mischievous strength, or perhaps producing fatal consequences, while protective measures have been deferred.

CHAPTER VII.

Connection of suicide with insanity; the latter not necessarily co-existent with the former.—Suicide absolutely excluded by none but the Christian moralists, except Cicero.—Ancient opinions: Stoic; Peripatetic. Importance of this view.—Cases in which suicide *does* spring from insanity.—Diagnostics of the suicidal tendency.—The homicidal tendency considered in its relations to insanity.

That the tendency to suicide should be an occasional concomitant to insanity might be expected; since the sufferings, which produce this mental disease, also render the possession of life less desirable. It is also true, that insanity facilitates the commission of suicide, by removing in some degree and in some cases the barrier opposed to it by the dislike of bodily pain: since, with diminished susceptibility of bodily pain, the fear of inflicting it upon ourselves must also be diminished. When, however, certain elements of character, such as a quick sense, and impatience of moral suffering are present in a high degree, or when, existing actually in a lower degree, they are excited and fostered by indulgence; when again these qualities co-exist with a physical indifference to pain and danger, they certainly predispose to suicide, even where no insanity may

be present. If external sources of unhappiness are added, or, if physical constitution, such as some forms of bilious indigestion, co-operate, the risk is increased.

Let us suppose a given individual predisposed to suicide by a concurrence of these causes; and let us suppose, that insanity has supervened. It will be observed that the danger of suicide is augmented in the supposed case, or, on the other hand, is occasionally diminished, on grounds, which it is important to trace.

When insanity has proceeded to the extent of obliterating all consecutive thought, the patient is placed under less risk of suicide than he was under before. When again, the state of insanity is less complete, so that it leaves the operations of thought still energetic, and only destroys our power of self control,—insanity must then invigorate the tendency to self destruction, and increase the risk. On the whole, the cases saved from suicide by the obliteration of thought will not be sufficiently numerous to prevent the very frequent co-existence of this act with the mental disease.

This method of viewing the subject of suicide has always appeared to me more philosophical, than the regarding an act so deliberately performed, as it often is, and with so tangible a motive, as involving necessary insanity.

Education rendering the effects of calamity less intense, by cultivating antagonist states of mind; the kindly sympathies of our nature, and more than all the influence of revealed religion with its system of rewards and punishments dependent upon a probationary state, these three agents may oppose powerful and effectual obstacles to the commission of suicide, whatever may be the strength of temptation.

But of these three topics the last alone is conclusive and irresistible in its appeal to our reason. This alone answers the question, What binds man to a life of incurable and excessive misery? by suggesting the hope of a remunerative state of being.

In truth, reason, in the absence of revelation, has never been able to make out a strong case against the commission of suicide.

The feebleness of Cicero's argument, based on the supposition, that it implies timidity, is now admitted at all hands.

"Remember," says Epictetus, "the principal thing, *that the door is open.* Do not be more fearful than children. But as they, when the play does not please them, say, I will play no longer; so do you in the same case, say, I will play no longer, and go. But, if you stay, do not complain."

The same strain of thought occurs in the writings of the happy and prosperous M. Antoninus. "While nothing draws me away from life, I remain in it, *being free to go;* if my room smokes, I leave it."

The peripatetic philosopher places the grounds of human happiness, in a state of mental regulation very similar to that inculcated by the Stoics; and though he does not suggest the remedy of self

destruction of such evils[1] as may not fall within the remedial power of self regulation, still he suggests no other.

"I have observed," says the learned Michel de Montaigne, "that the greater part of the ancient opinions are agreed in this point, that it is time to die when there is more evil than good in living, and to preserve our life to our own torment and inconvenience is to contravene the very principles of nature.

Κρειστον το μη ζην εστιν η ζην αθλιως.[2]

Still I may be asked, if suicide be opposed, as it undoubtedly is, to the principles of Christianity, why I endeavour to weaken the connection, which on high authority is presumed to exist between this practice and a morbid state of mind?

I have endeavoured to prove, that the hypothesis, which identifies suicide with insanity, is speculatively false. It is also a *practically* mischievous one. It narrows the moral grounds on which this awful sin should be met and prevented, by confining our attention, as far as this subject is concerned, to those in whom we also recognise the seeds of insanity.

We thus leave out of our consideration many who possess, indeed, that recklessness, which exposes them under adequate temptation to suicide, but who do not evince symptoms of the insane state. We have reason to suspect, that the predisposition to insanity is a limited one. But there are few, who have not felt at some period of their lives some portion of that discontentedness with the procedure of the world, which involves, not indeed the act of suicide, but the class of emotions out of which the *tendency* to it springs. The rooting out this class of painful emotions is valuable on its own account. And no one can say how far they might lead him on the road to suicide, if strengthened by habit, favoured by circumstances, and supported by personal intrepidity. That man is little fitted for the duties of life, who, at every turn of adverse fortune, or under every shifting cloud of ennui, feels that he could willingly "shuffle off this mortal coil," if he were but able to muster up sufficient courage for "the leap in the dark."

But suicide, however it may require to be considered as distinct in kind from insanity, certainly deserves notice in its relations to that disease. The above remarks, indeed, are not intended to deprive those who are interested in this painful subject, of the consolation which they may derive from this view of it. We are surely entitled to look at that event with mitigated feelings of pain, when it has ensued upon an attack of insanity. Those whose moral and religious principles would have enabled them to resist the horrible temptation, as long as their power of self control and the integrity of their perceptions should remain unshaken, are placed by opposite circumstances under a difficulty which must

[1] πρεμικαι τυχαι.

[2] See note III. Appendix.

afford a painful but a large excuse, according to any rules, by which we can suppose the thoughts of man to be judged.

Besides those, in whom delirium and false perceptions indicate the presence of insanity, we are authorised to extend this plea in favour of such cases as a recent publication, the life of a venerable dignitary of the Church, has illustrated in one very painful example, A gentleman of unblemished life, and highly cultivated mind, whose only palpable drawback to happiness consisted in somewhat straitened circumstances, falls into a despondent state. He uses, in communication with a friend, the expression, that he "cannot much longer bear up against his troubles." In a few days afterwards, with no overt indication of madness, he terminates his own life. Now this is a case, which can hardly be accounted for, according to the ordinary laws of the human mind. We cannot by any effort of imagination place ourselves in a state, in which we should relieve ourselves of that extent of inconvenience at such a price. There was in this case neither conscious guilt, nor the dread of shame, nor loss of friends, nor poverty in its over-mastering form. We are, I think, compelled to adopt the supposition, that a *new* action, if I may use the expression, had been set up. That the delirious whirl of thought had occcurred; that false perceptions had taken possession of the unfortunate gentleman; and that voices were calling upon him, and tempting him to the gulf, into which he so frightfully plunged. These symptoms, or in other words, a state of insanity had probably occurred. The case is widely different from the calculating suicide of a detected malefactor, or a proscribed Roman; to which latter person, there being no possibility of escape from an ignominious death, when "all the world was Rome," the commission of suicide became almost a matter of expediency.

The following considerations apply generally to this subject.

The suicidal tendency belongs principally to the bilious temperament.

It is rarely found in persons of personal timidity or of moral courage.

It is remarkable for the intensity, with which it operates, when developed in the insane, and for the address with which it masques its measures.

Accordingly, it increases the difficulty of treatment, whenever it co-exists with the insane state; and nothing but the most watchful attention can defeat the manœuvres by which the unfortunate patient endeavours to attain his purpose.

One of the first points which require consideration with this view, is the quality and kind of false perceptions occurring in a given case. Some lunatics will be found adopting their daily line of conduct, or again changing it, in reference to certain voices, which appear to dictate to them. Such persons are liable to carry into effect whatever measures are uppermost in their own mind, since these measures derive oracular force and influence from being conveyed, as it were, into their ears by their invisible companions.

Through questions adroitly put, as to the communications thus made to him, the patient's own intentions may often be obtained and anticipated. And this leads me to notice a rule of practice extremely important in regard to the general interests of the patient, as well as to our present topic. In discussing with him his false perceptions, while we assert, that he stands alone, or, as was well expressed to me by an insane person, that he is in a "minority of one," in regard to them, we must be cautious how we deny their reality, that is, their reality in regard to his perceptions, and much more how we deride him. By neglecting this rule, we often loose a valuable means of ascertaining the springs of action by which he is influenced, and thus of defeating improper designs, and generally we diminish his confidence in our promises and assertions. For the lunatic is not likely to feel the confidence, if feelings which are important to him, are derided; and if phenomena, which present themselves to *his* senses, are ascribed to his imagination. Meanwhile, the existence of this confidence is perfectly compatible with a distinct assertion and protest on the part of the physician or the friend, that *he* does not participate in those views which the patient describes as his own. When this relative reality is admitted, the sufferer is induced to accept the assurances with with which they are accompanied, and to believe, that they may at some future time turn out equally correct in other points. Thus his judicious adviser may induce him to expect an alteration in the current of his thoughts and perceptions which may assimilate him to the rest of his species.

Exuberant gaiety bursting forth in one, whose ordinary state is extreme depression, constitutes an ominous symptom, where the tendency to suicide is suspected. The patient has often, at that moment, achieved just that state of orgasm, which will enable him to commit the act; and he exults fearfully in the consciousness of this.

"Furor est agnoscere solis
Quem liceat quos jam tangit vicinia fati."

Sometimes, in regard to this act, as well as in regard to other proposed extravagances, the patient announces his intention definitely and precisely. To such announcement the greatest attention should be paid as unostentatiously as possible. Dr. Burroughs gives an example of a nobleman afflicted with "tædium vitæ," who promised not to commit suicide before his friend returned, at an appointed hour. Unfortunately the friend returned one hour beyond the limited period; and he found, that Lord S—— had just shot himself.

The signs of a suicidal tendency, presenting themselves under insanity, should indeed be carefully studied in relation to the *non*-application, as well as to the application of precautionary measures. The former point deserves consideration. For it must be remembered, that the indulgences, the freedom from restraint, for

instance, which we must deny to an insane person, for the purpose of securing him against himself, are often such as would be conducive to his recovery, if they were compatible with his personal safety.

If the tendency to suicide occasionally requires the supposition of insanity for its explanation, this hypothesis is requisite in an equal degree to enable us to explain the wish to kill others, when this wish presents itself, as it often does, without any intelligible motive, or arrives at its horrible conclusion without meeting with those restraints, which a sane state would imply in the supposed case.

Often, under those circumstances, we are compelled to believe, that delirium is present during the whole procedure, and that the wish to destroy is operating without any control from voluntary power. It is unchained, as it were, and let loose by insanity.

Often, however, (and this latter head more particularly deserves the attention of the moralists), a tendency either directly or indirectly leading to the commission of the act, has sprung up in the mind antecedently to delirium, of which its indulgence has been the cause. Here insanity is, in some sort, productive of the homicidal *act*, and is itself the consequence of the homicidal *tendency*.

The following is the abstract of a case given by Dr. Esquirol, which illustrates this point.

"Mr. C—, a gentleman of a bilious and nervous temperament, aged thirty-three, about a year after his marriage, exhibited many signs of unreasonable jealousy, and soon afterwards became insane. from this attack he appeared to recover, and also to lose his jealous feelings. In a short time a relapse occurred, the delirious phenomena of which he again surmounted. It was observed, however, that he remained with a gloomy and suspicious aspect, after the subsidence of the disease, and his ancient jealousy occasionally showed itself. His suspicions now, however, appeared to direct themselves to the state of his house, on his return to which, after an absence of some duration, he asked his wife to accompany him to his wine cellar, that he might ascertain its being in order. As they do not return out of the cellar, his sister-in-law goes down after them: and on her also staying, a maid-servant follows, but instantly returns, in extreme horror. She had found her two young mistresses murdered, and only saved her own life by a prompt retreat. The murderer is found in a delirious state, intrenched behind some casks of wine; a razor near him. He is taken to an establishment, and, after a confinement of some months, dismissed as cured!

"He next establishes himself at Paris with a mistress; and reenters into business. The tendency to commit murder, returns, as might be expected; and he endangers her life. She escapes, however; he is replaced at an establishment, and dies, in a few days, in a state of violent delirium."

Now here we have a long continued state of jealous excitement in a mind predisposed to this passion, and supplied with food for it even by his affections. On this, insanity supervenes. The savage impulses natural to jealousy now develope themselves, uncontrolled,

and they proceed to those results, which they tend to, when the will is suspended, in minds unfurnished with the countervailing tendencies or principles.

Persons, in whom the murderous orgasm is developed previous to insanity, that is, before their power of self-control has been abolished, have sometimes been able to warn the objects of their destructive inclinations of their danger, and enable them to fly from it. This circumstance is noticed by Dr. Combe, whose speculations, and those of the phrenologists generally, on the subject of the homicidal propensity, are full of valuable matter.

CHAPTER VIII.

Mental treatment of insanity considered relatively to its causes—Prevention of Insanity—Religious considerations—Difficulties in ascertaining character—Unintentional deceit practised on this point—Real co-existence of qualities supposed incompatible—Choice of profession considered—Rules for preserving mental health amid professional pursuits—Importance of uniting unprofessional pursuits—Treatment of insanity in its three stages.

Having finished this outline of the mental pathology of insanity, it remains, that we should apply the conclusion, which we have arrived at, to the prevention and cure of the disease.

This distinction is a convenient one. Though, in truth, the remarks, which we have to make on the first head, involve truths important also in regard to the second.

Those rules of education which are *generally* most conducive to the well being of the human mind, become essentially important, when the tendencies of the individuals lead us to anticipate insanity.

Virtuous principles should be strengthened; vicious tendencies should be supplanted in favour of the cognate virtuous tendencies. For a just theory of morals will suggest to us the fact, that our vices spring from impulses, to which education may ordinarily give a very different character.

The importance of the first suggestion, namely, the erecting principles of action, is extreme in relation to the insanely predisposed. For such persons are, as we have observed, ordinarily indecisive and regretful. But a general principle on any given subject supplies steadiness of purpose to the former, and controls the reactions of the latter by summoning to the aid of each party the satisfaction, which men always feel in being able to assign a reason for their conduct. Even the bad, if their vices have been erected into principles, are *so far* less liable to insanity, than men of virtuous tendencies, but of casual and uncertain impulses.

A high and enlightened religious feeling is, I believe, the best safeguard of the human mind against the invasion of this complaint.

It strengthens the tendency to hope, and supersedes those anxious regrets, which we have described as unsettling the influence of the will. The connection between religious associations and insanity

is not very justly appreciated. The apprehension of mischievous excitement, as arising from them, applies only to the actual presence of insanity; and is then only so far true, as the disease may happen to have been occasioned by wild and ill-regulated views on this subject. Religion, as dealing with the most important considerations, must, like any other very interesting subject of our hopes and fears, be liable to disturb the mind. But religion has rarely disturbed that mind, before which it has been brought rightly and wisely in early life and during the process of education. Some doctrines imputed to our faith by teachers, whom I must consider as ill-advised, have certainly a most dangerous tendency in this respect. I allude here particularly to the doctrines of election and sensible regeneration. If the tree be known by its fruit, assuredly those doctrines cannot have flowed from the Divine Author, to whom they are rashly imputed.

We have already noticed errors of management, which apply equally to the prevention and the cure of insanity, in regard to the important doctrine of repentance; when the structure of the individual mind happens to have been overlooked, and the patient is stimulated, who requires to be regulated and directed.

The management of the property of fearfulness is of extreme importance, when there is an insane predisposition.

With respect to personal fear, it is to be observed, that the elements of resolution or moral courage may exist in a high degree, in cases, in which animal courage is deficient. Now, resolution may be rendered an admirable substitute for intrepidity, provided the individual is not brought into very sudden or very novel dangers, before habit has given the decisions of his mind on this subject sufficient rapidity and firmness.

With respect to animal courage or intrepidity, there is a distinction between its forms, important to our present speculations. Some persons possess it in an eminent degree, when dangers are threatened from inanimate objects, and are comparatively deficient, when the mastery is to be obtained over things which, being possessed of life, can afford active resistance. This distinction is noticed by Sir James Mackintosh, who assigns the name of courage to the first, and bravery or valour to the latter form. "Courage," Sir James observes, "may be shown by a seaman, who braves the dangers of the sea, or by a horseman, who mounts a horse, which no one else will approach. Courage may be shown in calmly preparing for a surgical operation, as patience is exhibited in bearing it without a groan. Valour and bravery can only be displayed against *present* danger from a living if not a human adversary."

The above distinction is well maintained in a clever story in the "Chelsea Pensioners," in which the hero is delineated as intrepid under dangers from inanimate nature, but unable to sustain the class of dangers presented by an engagement,—and afterwards losing his senses, under this mortifying consciousness.

The fear of poverty and that of shame may be antagonised, the

first by the benevolent affections, the second by conscientiousness. The best method, generally, of curing a man's anxiety in regard to himself, is to make him anxious about the interest of others ;—and with respect to the fear of shame, our best appeal from the man *without* is to the man *within*. In regard to the fear of poverty, wherever this exists, the gambling principle, which it is apt to bring into action, requires to be carefully restrained. The love of gain is a most dangerous tendency wherever the fear of poverty is strongly developed. In such characters, the vicissitudes of fortune, where they are gainful, intoxicate. But when they lean to the adverse side, they depress in a much greater degree. In either case, they tend towards the insane state.

In our endeavours to regulate human character, one of our greatest difficulties is supplied by the efforts *unintentionally* practised to deceive us. Thus, men are constantly disposed to assume those moral qualities, which they wish to think themselves possessed of.

Cases may arise, in which two qualities shall really co-exist, bearing such a relation to each other, that the presence of the one shall indispose us to suspect the presence of the other. An unsound philosopher, who overlooks this occurrence, may place his friend or pupil in a very false position. I have thus seen a young man, who happened to be at once timid and conceited, pampered into a very erroneous estimation of his own powers, under the supposition, that he required excessive praise, his timidity veiling his conceit. I have seen another person, in whom high health, and buoyant spirits concealed much timidity and indecision, weakened yet more in his confidence in himself, by a friend, who studiously impressed him with the belief, that presumption was his leading defect.

If we consider the pulmonary or hepatic tendencies of a son, in making choice of a profession for him, it is not unreasonable that we should make this choice with some reference also to the qualities of his head or heart, in relation to mental disease. As this choice is usually made, it is often very mischievous. When made with *any* reference to character, it is often determined by an exclusive consideration of active tendencies. Ambition qualifies a man to be a statesman or lawyer; love of the acquisition of wealth fits him for commerce. But ambition may flourish in the ungenial soil of a sensitive, irresolute, anxious character. The love of wealth is, as we have suggested, compatible with intense fear of poverty.

In each of these cases, the active tendency cannot be gratified without some risk in relation to the passive condition of the respective minds.

An error somewhat similar to this may often be observed in education; where a boy's pursuits are determined exclusively in relation to his intellectual powers: thus a boy, already overcharged with imagination, is, on this very account, educated principally in the art of verse-making.

It is often important, that the individual should be furnished with

a collateral pursuit; an object, independent of his calling. And this consideration points to an advantage of *unprofessional* education, often too little considered. To bring up a young man exclusively to the pursuits which his active tendencies point out as appropriate, is often to leave him without any resource against the terrible shocks to which his character exposes him. But the operations of the intellect may be made available here, provided it be cultivated in those studies which are remedial to his peculiar failings. Thus a classical or scientific pursuit kept open in his closet, has often beguiled the *anxiously* ambitious statesman out of the regrets, the despondencies, and the disappointments, which his moral temperament involves.

Besides possessing themselves of some literary or scientific acquirements, I would advise those, whose talents allow them, to keep open some subject, of original thought, independent of their profession. Sir Humphry Davy was not the worse chemist for being a man of distinguished talents in literary composition; and he would probably have been a happier one, if some years of his life, previous to the commencement of his scientific studies, had been spent in the *deliberate* pursuit of literature at a university.*

Of the causes which make the current of our life uneven, one of the most frequent is to be found in the want of adaptation of professional pursuits to the state of the mind at the time at which they are entered upon. Education is arranged, and the entrance into a profession is timed, as if the development of adequate power, and the sobering down of antagonist tendencies, took place at the same moment with all. Whereas, these chapters of human life open at very different pages with different persons. Meantime, the stern voice of opinion determines a man's reputation, according to the exhibition which he makes, at whatever time his career is thus arbitrarily opened.

Agreeably with this reasoning, many, who are kept back by accidental circumstances, often erroneously regretted, even by themselves, from entering early into life, may have reaped the highest advantages from the delay. How far from involving any real obstruction to advancement such circumstances may be, is evinced in the progression of two gentlemen who have attained, in the present day, high eminence in the law; and, I may add, of the late Sir James Mackintosh.

Sir James Mackintosh, and one of the gentlemen to whom I allude, were brought up to the profession of medicine, and did not apply themselves to the more arduous labours of the law, until time had matured their powers, and removed the impediments of youth. The other gentleman, to whom I allude, was brought up to commerce. After spending some time in these occupations, he was sent to Cambridge, where he distinguished himself, and gained honours.

* It is, perhaps, needless to remark, that these suggestions apply to the furtherance of mental health, not of intellectual power.

How far the strengthened judgment and confirmed habits of application, with which he then attached himself to the law, may have promoted his success in it, is a question which can only be answered by a farther extension of this enquiry.

> Who can contemplate fame, through clouds unfold
> The star, that lightens o'er her steep, nor climb?

is the melancholy question of many others, as well as the noble author of these lines, whose powers of climbing have, perhaps, arrived at their fullest perfection, some time after they may have made an irrecoverable false step, from having attempted to climb before they had attained sufficient discretion for the dizzy ascent.

The above remarks may possibly be a series of truisms. But no one, who has studied the human mind in its deviations and morbid states, will consider them inapplicable in kind. The disappointments, occasioned by a false start in the great race of life, spread their influence through its whole course. And it is a painful reflection, that the period at which these irretrievable errors occur, is that in which they are in truth most venial.

I have given to these remarks a more extensive application than the purpose of the work might seem to require. But let us *now* suppose the precautions which they suggest to have been unsuccessful, and the morbid state commencing. Every effort must now be made, that may contribute to strengthen the influence of the will. The patient, if under observant eyes, will be noticed, as gradually surrendering himself, though not without a struggle, to some prevailing idea. His friends are conspiring against him; his movements, and very thoughts, are watched, the police are engaged for this purpose; insults are intended; poverty is impending over him; he has lost, or fancies he has lost, his power of sleeping, and indulges vague, but strong surmises of evil likely to result from this loss. Meanwhile he is struggling, often in secret, against the fiend-like invasion. All those efforts, which he may be observed to make, must be aided when they are right, and, what is equally important, tranquillised when they are wrong. Now they generally *are* wrong, when the patient assumes that he can master the painful impression by reasoning himself out of it. This is a contest in which the patient must be content with flight, and not seek victory: and such is the fascination exercised by the prevailing morbid ideas, that his flight is difficult, and requires external aid.

To administer such aid is also a matter of difficulty. The danger of mischief to himself or others, as well as the general necessity of repression, dictates surveillance (and this is always irksome and distasteful,) just when we most wish to conciliate liking and regard.

The latter objects, which cannot always be secured even by the most discreet advisers, are often heedlessly thrown away. Those advisers, who laboriously confute the patient's erroneous assertions, or deny the reality of perceptions, which are *real to him*, in other words, impute them to his imagination, strengthen his disease by

destroying his confidence in their judgment. To tell him, that his perceptions will sooner or later become different, is to give him comfort; as this gives him reason to hope a change in his circumstances. To deny their existence is to assure him that you do not understand his case.

Do not scold your patient. He wants an opiate at your hands; and as the drug itself rarely agrees with him, you must give it him in a moral form. Endeavour to relax the tension of thought, and feeling. Help him into listlessness. Meanwhile, though you argue no point with him, remember, that you must concede no measure. The more resolved he finds you, provided your firmness is tempered with kindness, the more he will rely upon you. He needs your support against his own vagueness and instability.

Check your patient, and teach him to check himself, at moments at which he is endeavouring to secure too large a measure of positive enjoyment. The measure of enjoyment, which every man should consider appropriate to his case, is just as much as can last its time, without occasioning nervous excitement.

If your patient is regretful, let him accustom himself to assume that the recurrence of regretful feelings is a law of his constitution; and to consider the force of each re-action, as commensurate, not with his reasonableness, but with the strength of the impulse, under which he had previously acted or resolved to act.

The medical measures, which should concur with this moral treatment, will be considered presently by the judicious application of such measures, combined with the mental management which we have detailed, the patient is often restored to a sound state before delirium has occurred; i. e. before the disorder has placed him beyond the reach of his self-control. But such hopes, again, are often frustrated; and when this is the case, another series of measures becomes painfully requisite. The patient must be protected against himself by coercion gently applied. This, Mr. Esquirol well remarks, may often be superseded by the demonstration of such imposing force, as may convince the patient of the futility of opposition. Perfect quiet and a darkened room are important. The patient, as has been observed, will emerge out of this paroxysmal state into a gentler form of the complaint, in which he will ordinarily continue some weeks, sometimes many months. In this, the third stage, as well as in the second stage, he will often be found to bear the restraints which are imposed upon him with unexpected patience. A madman submits to authority, which is fiercely resisted by the person over whom the disease only impends.

At the commencement of the second stage, the separation of the patient from his family and friends generally becomes indispensable. The value of this measure is attested by long experience, and may be justified by adequate reasons.

First, The total change of associations often thus effected.

Secondly, the calm and unimpassioned management, which the patient may experience from strangers compared with that of rela-

tions or old friends; whose kindly sympathies, and sometimes their unkindly sympathies, might be prejudicial to him.

It will readily be granted that the affectionate sympathies of friends and relatives may be exciting to the patient. But apprehensions of their unkindness may appear to be based upon a low estimate of human nature. It must however be remembered, as pointed out in the early part of this work, that the moral department of mind generally suffers first under insanity. Thus a thousand occasions of painful and offensive intercourse have generally arisen between the insane person and his relations, before he has obtained the excuse, which *admitted* insanity affords. It must again be remembered, that as the affections of relatives are stronger, so their feelings are more alive to irritating conduct; and therefore that they are likely not to command their looks, their words, their gestures, with the calmness requisite for such management.

Thirdly, It is often important to the comfort of the insane, in his intercourse with his relatives, when his recovery shall have been established, that they should not have been his keepers during his malady.

Fourthly, The separation, recommended on the above grounds, is also desirable, as being a direct instrument of the patient's recovery. And this leads me to a very important consideration in regard to the latter object. In this disease, which *appears* to paralyse every valuable energy of the human mind, the extent to which the patient contributes to his own recovery has not been sufficiently recognised. As the mist of delirium becomes less thick, he begins to recognise his state as one of separation and banishment; he does not indeed admit the reasonableness of this banishment, but he is desirous of terminating it. He now gradually discovers, that certain trains of thought and forms of expression are objected to by his medical attendants; he endeavours to avoid those trains of thought and those expressions; for on his doing so, he is led to understand, that his liberation and re-union depend.

Meanwhile the gardens and pleasure-grounds of an establishment tranquillise. Few could afford to purchase such advantages, as a well regulated establishment affords, in any other form. The substitute afforded by private lodgings is frequently inadequate. They do not allow sufficient room for the exercise of the patient, who must not be brought into contact with the public.

At this period, namely in the third stage, the "tempora fandi," the opportunities of an effective remark, must be observed with watchful attention. Suggestions vividly and pointedly made of incongruities of thought and conduct often appear to rouse the patient into a consciousness of his state. His mind perhaps darkens again, but the vestiges of an impression thus made are often observable in his subsequent conduct. Many such alternations of light and darkness occur during convalescence. Those who are accustomed to this complaint know how to improve the opportuni-

ties thus afforded, without encouraging precipitate expectations of enlargement, or stimulating topics of conversation.

A very valuable influence may be obtained over the insane mind through the medium of its sympathies. By means of this powerful machinery the associating process may be arrested in its rapidity, and displaced from the irregular tracks in which it has been proceeding. In proportion as men sympathise, they are disposed to imitate; and it has occurred to me in many instances to observe the effect of a well-regulated mind upon the convalescent insane, when that mind is furnished with the curious tenacula of sympathy, which seize and hold under their influence the minds of others.

It may safely be assumed in these cases, that the sound mind imparts; the insane is the recipient. For it seems to be a law regulating the influence of sympathy, that the weak should take their tone from the strong. Instances have however occurred, in which the influence has been the reciprocal. An anxious and attached wife had maintained a long continued intercourse by letter and conversation with her insane husband, who resided at a private establishment. This gentleman had passed into the third stage of his complaint; and there continued. He required but little surveillance, and united in a remarkable degree his original capacity for clear thought and sagacious reflection with the rapid and erratic associations of insanity. The lady herself, though nervous by temperament, had a sound and strong understanding. In talking with her, however, it is easy to see, that the sequence of her thoughts, and the links by which they are connected, have been influenced by the habitual contemplation of a morbid mind. Their mental relation has indeed become that which is expressed by the terms, "ils s'entendent."

There is much skill required in the management of the insane, in observing a distinction between those ideas, which belong to his disease, and those, in regard to which his mind is *at the time* not insane. The power of control over the train of thought sometimes returns very suddenly: and it is of immense importance, that the chain thus recovered should not escape the patient's grasp. Now, whatever modes of thought receive the sanction of a judicious medical attendant, are by this circumstance in some degree recommended to the attention of the patient, provided his sympathies have been secured. Thus his recovery becomes valid in his own eyes, when countersigned, as it were, by the opinion of his friend.

A patient, who had been insane for three years, and had spent a large portion of that time at the establishment at Ticehurst, had passed into a state of alternate lucid intervals and paroxysms, each of these states successively lasting for some weeks. At the commencement of one of these, he announced to Mr. Newington, the proprietor of the establishment, that he should never have another attack. On learning this, as well as that he had never before made any similar remarks, I went over to Ticehurst; and formally stated to the patient, that I accepted with pleasure his announcement of

his recovery; that I believed he was correct in his supposition that it had taken place; that nothing more remained, than that he should give himself and me some proof of the soundness of his own impression, by spending a portion of time, which I named, at the establishment. This patient never relapsed.

Hitherto, I have supposed that the disease is tending towards recovery, and I have contemplated a state of the case in which, as the delirium subsides, a clear and lucid state of the mind is disclosed. It is perhaps favourable to the activity of our exertions, though it involves a want of scientific precision, that we are so little able to speak confidently of results. In the case above alluded to, three years had elapsed; still the patient recovered. In most cases of equal endurance, by that time, evidence of a weakened and paralytic, as well as perverted mind, will have become manifest. With this a failure of bodily health keeps pace. The skin becomes more dry and harsh; the figure more meager; one of those lesions of brain, which dissection discloses, will have probably commenced. The patient may, however, still live long, if not exhausted by depletory measures; or if there are not other physical conditions involving extreme nervous excitement or epileptic paroxysms. For, on the other hand, he is no longer subject in the same degree to that excitement, which his intellect and his moral deportment had before supplied him with.

Over this melancholy state art is unavailing as a source of cure, but may go far to alleviate pain, and make existence easy and comfortable.

CHAPTER IX.

Physical treatment of insanity—Mental and medical influences produce equivalent physical effects—Physical treatment referable to temperament;—in the employment of depletory agents;—of tonics—of sedatives—of counter-irritants.—These measures considered separately in their application to the three stages of insanity.

I have hitherto described the mental treatment of a mental disease: and I have been the more desirous of asserting the importance of this view of the subject, because it is always liable to be neglected in favour of physical treatment founded upon physical views.

The treatment, which regards our animal economy in its physical state, operates through agents, if not more potent, at least more definite, more immediate and more easy in their application. A dose of calomel is easily administered; and, if it succeed, is very prompt in its relief of mental uneasiness. A system of mental discipline is of slow operation. Between the two systems there is, however, this important difference; that the one has no necessary connection with

the formation of a habit of self-control; while the other essentially involves it.

The quaint author of Clarissa Harlowe, puts before us the convertible nature of mental and medical influences even in producing a given physical state, when he represents Lovelace as having recourse to a dose of ipecacuanha in order to obtain the wan and disconsolate appearance of unrequited love. And it would require the pen of Montagne, or of our own Burton, to tell us, without unbecoming levity, in how many cases of escaped madness the regulation of the state of the bowels has at some critical moment been preservative;—or again, how often this disorder has arisen from the corresponding neglect.

Still the deliberate adoption of precautionary measures, whether of a mental or of a physical kind, against insanity, is somewhat repugnant to our feelings. Men do not like to consider themselves obnoxious to this disorder. The assurance that there is no insanity in a given family is made with more earnestness, than, that there is no consumption in it. But neither in the one case nor in the other, have we taken the gauge of that predisposition, which may be sufficient to produce the disease, if external events favour its growth. Of this, however, we may be assured, that in each case, the precautionary measures are such as would be salutary, even if there were no such danger impending over their transgression.

The medical and hygeienic measures, which *prevent* insanity, may indeed be described as those, which would most tend to secure the general health of the patient, according to the laws of his temperament.*

With respect to the curative treatment of insanity, the remarks, which I have to suggest, apply to four points. The use of depletory agents; the use of tonics; of sedatives, and of counter-irritants.

In deciding on the fitness of depletion and its requisite extent, two prominent features of the insane state should be kept in mind; the exhausting nature of the complaint; and its affinity to inflammation of the brain. The last of these liabilities gives a reason for *some* depletion in *some* cases; the first of them enjoins moderation in *all* cases.

The various aptitude of men in relation to temperament are important topics in deciding these questions. A well-timed blood-letting in the first stage of insanity removes a physical obstacle to self-control, under the sanguine or bilious temperament, or one compounded of these two. The same process with difficulty finds a place under the nervous temperament, owing to the rapidity with which the vital powers of such persons will be squandered away, when a lowering treatment is adopted under circumstances, which involve a rapid expenditure of nervous energy. Besides, these patients can ill support the process of re-action, which succeeds losses of blood. When the powers of self-control are wavering, the inter-

* Vide Note IV.

val which separates the patient's mental state from delirium or incoherency is a short one, and easily passed. Any physical procedure, which hurries the circulation, tends to carry a predisposed person across it.

In one case, which I witnessed, that of a middle aged lady residing at an establishment, in whom the disease had continued for some time in its first stage, the application of a few leeches to the temples, which her dull and oppressed look and robust figure seemed to indicate, as, at least, a safe measure, gave a very mischievous development to the disease. She became instantly very delirious, laughing and chatting incessantly, and in this state I found her on my next visit to that establishment, about four months afterwards.

The bilious character of this case made us overlook its nervous phenomena.

The following passage from a letter written by a lady with whom I was in correspondence in the year 1835, brief as it is, developes a case, in which a practice similar to that described in the last, would very probably have led to similar results. This lady had by my direction taken some mild, alterative aperients, and a cordial mixture for six days. "I still feel," she says, "a whirl about my head. I should describe it, as if it felt too tight; and express the feeling, as if air got in, and made a whistling or rushing about my ears; *or I could fancy it voices talking to me.* I feel a reluctance to apply to any thing; to work a sum with my children seems too great a strain on the forehead; and I forget as soon as I have read a page, or indeed any conversation; even, if I desire it to make an impression. I once, many years ago, in 1818, had a slight illness in Paris, and possibly from over excitement a tendency to imagine things different from what they really were. This always made me most anxious during my confinement, and at other times, to keep myself as tranquil as possible. I never had any return. But have for some time felt unwilling to attempt mental exertion. I remember, once at ——, taking some bark and cayenne pepper; and it seemed to clear my ideas and to make my mind more collected."

The writer of this letter describes in the last sentence the practice appropriate to the first quoted symptoms. She was a fine person, aged about thirty-five, of a full but flaccid figure, her temperament leucophlegmatic and nervous; but, living in a very bracing air, she kept herself in a state of fulness, which might easily simulate the robust sanguine constitution. She had *had* several children; and her mind was kept on a stretch by domestic cares. The catamenia were free in quantity and regular. Now, in this case, the lancet, if used for the above congestive symptoms, would have had a very mischievous effect on her powers of self-control.

The melancholic, as we have observed, bear moderate depletion well. The oppressed head and pulse given by hepatic obstructions, which belong to this temperament, often require relief from cupping or the lancet. And if under insanity this operation is moderately

performed, it will probably relieve and lighten without exciting. But, if the good thus gained encourage us to push the operation further, we may next find the patient complaining of an opening and shutting sensation of the head, of inability to command his thoughts, and perhaps of voice which he hears whispering to him. Under these circumstances, depletion has been carried on too far. In a large and powerful man of this temperament, I have seen free venesection convert quiet melancholia into delirium.

The following is the outline of a bilious case successfully treated and cured in its first stage. Venesection had been moderately performed by a skilful general practitioner immediately before I saw this patient.

Mr. C. D. a dark complexioned athletic person, aged fifty, has for some weeks been declining into melancholia. He sleeps ill, and feels occasionally as if he were losing the power of self-direction; seems to himself to have become subject to irresistible external agency, does not however hear voices, or see any figures; says that under these circumstances, he is occasionally overtaken by shocking thoughts (some years ago he had attempted to commit suicide). Such states of mind appear to subside into hysterical crying. He has good and bad days nearly alternating. Latterly, he has lived less temperately than is his usual practice. His bowels are somewhat confined; motion light in colour and heavy in substance; urine high-coloured. This gentleman some years ago had an attack of insanity, in the course of which he attempted suicide.

July 8th. Sumat camphoræ gr. i; hydrarg. submuriat. gr. iij. ext; colocynth. comp: gr. v, hac nocte. Inf. sennæ ʒ xi, tinct. sennæ ʒi, sulph. magnesiæ ʒ ij, cras mane infricetur unguent. antimonii tartaris. nuchæ bis quotidie.

July 10th. Pil. hydrarg. gr. xxv; ext. colocynth. comp: gr. xxx; scammoneæ gr. vi, camphoræ gr. iv; dividantur in pil. xiv, e quibus ill mantur ij, alternâ quâque nocte. Infus. sennæ ʒxi, tinct. sennæ ʒi, potassæ sulphat. ℈i, fiat haust. bis quotidie sumend.

July 19th. He is more consecutive in conversation, but still sleeps ill, and says that in the night he wakes up in a state of confusion; and he asks the attendant, who sleeps in his room, if he does not hear voices. His pulse is (and has been) fifty four, not remarkable otherwise. Perstet.

July 28th. He is so much better, that his attendant is dismissed; his butler sleeps now in his room; a pustular eruption has been excited; his pulse is sixty. The alternation of good and bad days is ceasing; and his shocking thoughts no longer occur to his mind; but he still sleeps uncomfortably.

In about a fortnight from this time the patient had completely recovered.

Now in this case, full living, and neglected bowels, occurring in a person predisposed to bilious congestion, had induced torpor of the liver; and this again brought into operation a tendency to melancholia. The main object here was to unload without depressing;

and it was attained. The presence of an attendant was a protection to the patient against his own fears; as well as a motive for his exertions to attain self-control.

In the case of a young lady, in the year 1818, in which I pursued a similar depletory plan at the commencement of the treatment, the accidental taking of a dram of nitrate of potass by mistake for a scruple three times a day for a fortnight, which produced bloody evacuations and obstinate vomiting, appeared to operate most beneficially in the disease. It subsided with going into its second stage, and has never recurred.

The serous temperament obtains most benefit from counter-irritant depletion. Though it will bear moderate abstraction of blood. In each of the temperaments this operation is contra-indicated under the second stage by the nature of the disease, though sometimes rendered unavoidable by the occurrence of inflammatory symptoms.

The application of tonic medicines under insanity is often indicated by the tendency of the disease towards exhaustion. But it should be modified by the liability of the same disease to proceed into a state nearly allied to inflammation of the brain.

In persons of the nervous temperament tonics may, however, prevent this state by giving steadiness and firmness to the circulation, as in the case alluded to, page 42. But in the sanguine or bilious temperament, if applied in the first stage of the disorder, would occasion its inflammatory development. Not so in the serous temperament: here tonics, united with strong aperients, often relieve the patient very promptly and effectually.

According to this view of the subject, the use of tonics in the first stage of insanity is valuable in the nervous and serous form, mischievous in the bilious and sanguine form.

In the second stage, tonics are inapplicable, whatever may be the temperament of the patient.

In the third stage, they are valuable in every temperament, with this reservation, that their use in each should be cautious or bold, in the same proportion as it be noxious or salutary in the first stage of the disorder under that temperament.

Thus the nervous temperament demands a more liberal use of tonics than the sanguine or the bilious.

Comparing the mischievousness of misapplied tonics with that of similar depletion, we may observe, that an injudicious use of tonics is often negative as to its intended effects. They perhaps merely disagree with the stomach and bowels; perhaps irritate and pass off through the latter channel. But a loss of blood is sure to achieve its purpose, and must occasion a definite and certain loss of strength to those who do not require it.

Purgation is a most important agent in the treatment of insanity throughout all its stages; and the principles on which it is conducted must in such case be estimated with a careful reference to temperament. The bilious and leucophlegmatic or serous bear it well, and often require that it should be largely performed. With

them the use of purgatives seems valuable, both as unloading them and as directly reducing arterial action. With the sanguine temperament it is more valuable in the former relation. The best practice in this class of cases is free purgation, preceded by moderate abstraction of blood in the first stage. This practice, if carefully carried into effect, is applicable also to the sanguineo-nervous temperament. Persons thus constituted will often appear worried and excited by the action of aperients, unless the circulating system has been first directly relieved; and the lancet, it will be observed, diminishes the necessity for active aperients.

In the unmixed nervous temperament, abstinence from bloodletting and temperance in the use of purgatives are generally expedient. In this state, a combination of sedatives with aperients is valuable.

The intention of sedatives is in every stage of the disease a wise one. By soothing the insane patient, we at once give him wholesome strength and reduce morbid action. Of all the medicines which possess this virtue, opium has been in my experience the least valuable, and digitalis the most so. The following recipe I have found very useful in the second stage of the sanguine or sanguineo-nervous temperament. Mixturæ camphoræ ʒxii.; potassæ nitrat. ℈i.; tincturæ digitalis ♏xv., m. fiat haust. ter quotidie sumend.

Opiates appear to be mischievous under insanity. They minister to bodily irritation better than to mental. At the same time under certain states of sleeplessness, it may be prudent to give any agent a trial, which may have a fair chance of obviating it. In one case, in which this state co-existed with a tendency to suicide, I gave an opiate combined with a dose of calomel, knowing that the opium would disagree, but thinking it essential to the patient's safety that she should be convinced of her capacity for sleep even at the expense of uneasiness during the next day.

The extracts of henbane and lettuce are useful combined with camphor in small doses, and with the compound extracts of colocynth. For stomachic purgatives obviate the depressing effects of sedatives upon the digestion. Few sedative medicines are more safe, as well as salutary, than the infusion and tincture of hop.

The value of counter-irritant and derivative remedies in madness deserves farther investigation than it has received.

Depression of mind often supervenes upon a suppressed or departing eruption. And it is equally certain that the restoring or imitating, or finding a substitute for this, has relieved the mental affection. Dr. Jenner's five cases of successful use of the unguent. antimonii tartarisati are conclusive as to its beneficial effects under insanity.

Of blisters and setons Haslam speaks distrustfully, and quotes Dr. T. Munro's opinion to the same effect.

Blisters, setons, and issues, form a part, and apparently a beneficial part, of Dr. Prichard's admirable practice.

The following case from Dr. Nesse Hill[1] suggests a caution in regard to the counter-irritant practice, which deserves notice.

Mrs. E., ætat. seventy, mother of nineteen children, had enjoyed excellent health until the autumn of 1809, when she first began to feel an odd uneasiness at her stomach, with low spirits, nausea, and an aversion to her former food. These feelings did not exist long without being accompanied by unequal temperature, constipation, disturbed nights, with incubus and frightful dreams. She likewise suffered from vertigo and a sort of whirlegig in her head, as she termed it. Loss of memory and great terror now succeeded; a disturbed slumber for an hour or two was all that the poor old woman could get night after night; so that every morning, such was her mental distress, she declared she should go out of her senses. Being naturally robust, and formerly enjoying excellent spirits, this new situation was the more unaccountable, and she was indeed on the verge of melancholy, when suddenly a violent itching commenced at both wrists, ran up the arms to the elbows, which limbs were soon covered by a scaly eruption having the characteristics of lepra. All her other complaints now gradually receded, and the mental disturbance as gradually vanished, like a summer cloud. Various remedies were used to cure the "nasty evil," as she called it, on the arms; several of which diminished it considerably; and in proportion as they did so, the distressing, internal uneasiness, and correspondent mental symptoms returned, and vice versa. All this ebbing and flowing she endured with patience for three years, when regular medical assistance was sought, and to her great satisfaction was obtained, by emetics in moderate doses, fasting twice a week, mild saline aperients constantly acting on the bowels. Decoct. ulmi cum acid. nitric. dilut. oxygen. muriat. potass. and an issue in the arms. The affected limbs were merely kept soft and clean with vinegar and warm water, until the general health was improved; when the unguente pice et hydrarg. nitrat. p. æ. with a decoction of digitalis cleared them safely.

Now in this case it is to be observed, that the natural process, of which counter-irritants are an imperfect imitation, did not answer as well as the general depletory treatment, by which the whole morbid state was finally subdued.

Out of twenty-five cases which he narrates, Dr. Hill employs setons in three; in two of these with great advantage, one of them having succeeded a suppressed eruption.

Dr. Burrows speaks distrustfully of the counter-irritant system, except in retrocedent eruptions, and justly notices the sloughing sores which the unguent. antimonii tartarisati may produce.

Dr. Esquirol would limit the application of this "médication perturbatrice," as he well terms it, to "monomaniaques," and persons labouring under some forms of démence.

[1] Essay on the prevention and cure of Insanity, p. 445.

My own opinion is in favour of this practice, if accompanied by constitutional remedies, in the bilious, leucophlegmatic and sanguine temperaments. The period for its application is generally the first stage of insanity. In the sanguine temperament, the use of counter-irritants should also be preceded by direct depletion.

The perturbing effects, spoken of by Dr. Esquirol, may be imputed generally to these measures, when applied to the nervous temperament.

CHAPTER X.

ON BRUTALITY.

Distinguishing features of insanity restated, and contrasted with those of brutality—The latter disease traced to deficiency of the moral sense; principles of treatment deduced from this supposition—What men will not do, as being right, they must do, as being ordered to do it—The class of persons to whom this principle is applicable, left uneducated or ill-educated, owing to its non-application; punished, when convicted of criminal acts, not taught to avoid them—*e. g.* Lord Ferrers—Discrepancies between these views and some contained in a former essay by the author.

We have pointed out, that those who labour under insanity exhibit also a certain suspension of the power of will.

To this suspension of the power of will we have attributed the incoherency of thought and the falseness of perception, which, when not accounted for by sleep, or produced by certain forms of physical disease, indicate the presence of the insane state.

In this point of view we have termed insanity a state of mental perversion. For the suspension of the will does not at any period of that disease amount to abolition of its influence; and the operations of thought and perceptions are vitiated in the course of it, without being destroyed.

We have next to consider a primary mental disease, in which the deviation from the normal state goes a step farther, and amounts to the original deficiency or abolition of a property.

In discussing this form of mental disease, I shall borrow its leading features from an essay,[1] already before the public, in which I have endeavoured to portray its features, the grounds on which it may be contrasted with the normal or natural forms of vice, and the principles of its treatment.

"In the following passage, Tacitus sums up the moral life of the Emperor Tiberius: 'His moral character had,' he observes, 'different periods. It was excellent in the life which he led, and the

[1] Essay on the relation of the Theory of Morals to Insanity, by T. Mayo, M. D.

good report which he gained, while he remained in private life or held office under the sway of Augustus. It was dark and deceitful in the simulation of virtue, as long as Drusus and Germanicus survived: it was still the same, with a mixture of good and evil, during the life-time of his mother. It was formidable in cruelty, but free from exhibitions of open lust, while he loved or feared Sejanus; finally, it burst forth at once into vice and infamy; after that, all influence of shame and fear being removed, he acted entirely in conformity to his own dispositions."[1]

"In drawing the character of the notorious Lord Wharton, Swift makes the following remarks: 'I have had the honour of much conversation with his lordship, and am thoroughly convinced how indifferent he is to applause, and how insensible to reproach. Which is not a humour put on to serve a turn or meet a countenance, nor arising from any consciousness of innocence, or any grandeur of mind, but the mere unaffected bent of his nature.

"'*He is without the sense of shame or glory, as some men are without the sense of smelling;* and therefore a good name to him is no more than a precious ointment would be to these.'

"The following instances of this 'bent,' or deviation from common nature, are obtained out of a less elevated rank of society. Mr. A. was born in a respectable station, and is in possession of a good fortune,—of as much at least as he has allowed to remain out of a good fortune. He has a wife and children, and as many friends or rather associates as his convivial qualities retain for him in spite of the hardness of his character. He has always been profusely extravagant; for his passions and appetites have compelled him to squander money which he would probably have hoarded if his selfishness had taken that turn. His temper is at once stern and violent; and all who know him expect that the disposition of his will must prove him to the last moment of his life utterly unjust. If he had sufficient courage he would rob and murder, for his cupidity is under no moral check; but he is naturally very timid, and owes to this circumstance his freedom from such acts as the law construes into crimes. Such is Mr. A.; and such also, or as nearly such as the distinctive points which separate all individuals will allow, is Mr. G., his neighbour. But there happens to exist a peculiarity in the latter, which materially alters the course of his life and its results upon others. Mr. G. was observed to talk very much to himself; this excited attention, and on farther enquiry it was discovered, that he was habitually under the influence of false perceptions, and that he considered himself solicited by certain voices, audible only to himself, to perform those actions, which indeed flowed naturally enough from his own evil dispositions. Mr. G. was accordingly recognised as a lunatic, and placed under restraint. Thus the family of Mr. G. is secured against the results of his moral character; and his fortune will

[1] Vide Appendix, Note V.

descend according to the principles of law, thus dealing out a justice to others and a protection to him which would have been refused but for this hallucination.

"If on the one hand the interests of virtue require the admission of a moral sense, and if this admission is borne out by sufficient natural evidence,—on the other hand, it still appears both reasonable and humane to accept with readiness the proofs of an exception to this general law. Aristotle terms the absence of a moral sense a lesser evil than the struggle of vice against a principle of conscience; probably because it involves less responsibility. And surely to impute a principle of conscience or moral approbation to the class of men which the above cases illustrate, is to allow a very gratuitous extension of the depravity of human nature, which will rather weaken than strengthen our belief in the law, or, what is equally mischievous, will dilute and reduce the value of the principle itself, as a counteractive to sin.

"Now, according to this view of the subject, we have a class of persons, differing from the majority of mankind in their incapacity for moral distinctions, differing from the insane, in not labouring under any suspension of the power of will. On the first of these grounds they have a right to a place in our system of mental pathology. On the last, they must constitute a distinct head from insanity. I am not at present considering this class generally; I exclude, indeed, that section of persons in whom the absence of principle is obviated by the harmlessness of their tendencies. I am speaking of persons destitute of the moral faculty, and *also* vicious in their propensities. For these, I have borrowed the designation given to them by Aristotle, and I call them *brutal.*[1]

"In regard to the principles on which this morbid condition may be treated, the law, it may be observed, greedily takes advantage of its co-existence with insanity, whenever this occurs, and it readily does occur, to control the unsound habit of mind, but has not hitherto been able to grasp it in its own form. Although in truth the state which we term brutality spreads as wide devastation as insanity would, if insanity were left uncontrolled; and is, according to the above view, equally a disease of mind.

"The question how far the laws of our country might be so modified as to subject brutality to the same restrictive and protective treatment, which is actually applied to insanity, does not belong to our present subject.

"The presumed object of such measures would be to prevent or obviate the mischief arising both to society and to the offender from the habit when formed. But it is in the education of our youth, and there only, that we can find those alteratives of the human mind, which can prevent the formation of the habit.

"Now as far as morality is at present a subject of education, the choice of motives and objects is made with an exclusive refer-

[1] Vide Appendix. Note VI.

ence to those who have in themselves a capacity for the perception of moral distinctions. Thus at public schools, the universal appeal is to the sense of honour, to right feeling, to the generous sympathies of our nature. But what have these appeals to do with the human brute,—the being who is presumed to be unconscious of such motives and sanctions? The motive to right conduct furnished by its rightness, being here inapplicable, some other fulcrum must be found for the moral lever. What men will not do, as being right, they must be content to do as being ordered; and in truth they are contented to do so if the measures thus adopted are uniform and unhesitating. No one, who has observed mankind attentively, can fail to have noticed the discomfort of a large number of persons, when released from well-managed influence. It must indeed be remembered, in regard to the mind, as well as to the body, that the same machinery which restrains may also support and strengthen.

"I need scarcely say, that violence, always wrong, where moral regulation is concerned, is here peculiarly so. Violence tends to alter the relative position of the judge and the offender in the mind of the latter. This tendency may be obviated in minds of a higher cast by the penitential regrets of admitted misconduct. But in the *absence* of the moral feeling, it places the sufferer under the full and unmitigated influence of resentment, which tends to exculpate him in his own eyes. Accordingly the required measures, (though perhaps carried into effect by a series of expedients,) should have that quiet and apparently irresistible force, which may give to a process of discipline the passionless character of a law of nature. The only form of education in the present day, which can be said to operate conformably with the above reasoning, is to be found in the workings of a penitentiary. And this is a *penal* state. It is indeed a most painful consideration, that we are often compelled to wait until an opportunity is given of correcting a moral defect by its ripening into a crime. The very improvement which is taking place in our schools renders this consideration more necessary. Our best seminaries, in fact, exclude the unfortunate being, whose cause I advocate, from their walls. Probably they are right in this exclusion, as far as the interests of the better class are concerned. However this may be, something intermediate is obviously wanted, on our present principles of education, between a well-regulated school and a mad-house.[1] Those who are unsusceptible of the motives employed in the one, have now no refuge but in the other."

I have left these remarks nearly in the state in which they stood in my former essay. They point to a form of human character, too uncommon and abhorrent from our sympathies to constitute a law; sufficiently frequent, however, in its occurrence, to demand anxious consideration as an anomaly.

[1] For a case in which this latter expedient was unwillingly but successfully resorted to, vide Appendix, Note VII.

It is indeed time, that the disgraceful scenes should terminate, which are now occasionally enacted at the public offices in London; where a father is heard requesting that an ignominious punishment should be inflicted upon his son, as the only moral expedient which can reach him; and thus finds no other mode of obviating the deficiency of principle than the *penal* inflictions of the law.

But it is yet more painful that the offender should be allowed to wander on through crimes and inflicted misery, until he reach this goal. An instance of such a termination to the course of the brutal person is afforded by the unhappy Lord Ferrars. That nobleman was not *insane* in any customary use of the word; his intellectual faculties were good; and they were directed by a powerful will towards definite objects; neither did he exhibit that moral incoherency, which we have described among the earliest phenomena of the insane state. The business-like talents, indeed, which he displayed in his own defence, indisposed his judges to allow him the advantage of *that* plea. But his brutality made him unfit for *social* existence: the laws of this country did not reach him as a subject for confinement. Therefore he was hanged. This procedure was unavoidable under the circumstances of the case, and in the present state of our laws; but it constitutes a painful fact, considering that education at present affords no preventive to such criminality.

Those who have perused the essay quoted in this chapter, may observe some discrepancy in the views adopted in the present work, from those expressed in the essay.

That moral state, which in both works is termed brutality, is brought forward in the essay as a form of insanity. Farther consideration has satisfied me, that to class the former under the latter head will be loose and unphilosophical.

The moral symptoms of insanity, as described in the early part of this work, are a very important subject; the more important, as they occur at an early period of the disease, and afford at that time the only clue to its existence. But brutality is a distinct state from this. It implies destitution of principle, while insanity implies perversion of tendencies and want of self-control. In the latter case, the patient cannot hear the voice of conscience; in the former case, he has no conscience to hear.

CHAPTER XI.

IDIOCY.

Idiocy analogous to brutality, as bearing the same relation to the understanding which brutality bears to the heart: points of difference affecting the restraints applicable to these states—Idiocy congenital or supervening on other states: illustrative cases—The least decided cases the most difficult of management—General principles of treatment, moral and medical—Remarkable case, illustrating the danger of precipitate conclusions as to the existence of confirmed idiocy.

It will readily be admitted, that the predominant phenomena of idiocy are mental, though, like the other mental diseases which I have considered, it is accompanied by much physical affection.

Idiocy is analogous to brutality, as it implies a deficiency or abolition of natural properties. In this respect it bears the same relation to the understanding which brutality bears to the heart.

There is, however, this remarkable advantage in idiocy over brutality, relatively both to private and to public interests; that it is comparatively easy to check the extravagances of the idiot, and to defend both society against the patient and the patient against himself; while the brutal person, though destitute of those moral sentiments which direct the understanding to salutary purposes, may be fully competent to use it, so far as to secure himself against the coercion which his case demands. He is only restrainable when he has become the subject of penal measures; and these, in private life, are inflicted by the law. To persons whom circumstances have placed beyond the reach of law, the preventive punishment comes later, and often not till they have compelled its infliction by strange atrocity. Such was the fate of the Emperor Paul, of Nero, of the Duke de Valentinois.

Idiocy, our present subject, is either congenital, or a state supervening upon some noxious influence subsequently applied. In the latter case, when it occurs in childhood, it retains the name of idiocy; when it occurs at a more advanced period it has been called, by French writers, démence.

In early life, idiocy supervenes upon various forms of cerebral disease, and the liability to it is greatly increased, if the patient is treated harshly, or with ill-regulated indulgence, or if his intellect is over-stimulated. The following case, from Dr. Nesse Hill,[1] illustrates the miserable results of early mismanagement.

"T. T., a weak, feeble child, at nine years, was on this account kept at home, and foolishly accustomed to every indulgence. His nurse always burnt a light in his room till he was asleep, entertaining him with stories of ghosts, bugbears, &c. He was, at the above age, sent to a country school to receive the first rudiments of

[1] Essay, &c., p. 440.

education under a crabbed old woman. His intellects at this time were not inferior to those of children of the same age. For some trivial offence she one day bestowed several heavy thumps on his head, and thrust him into a dark hole. He became petrified with terror, so that, when taken out, he more resembled a statue than a human being. He continued stupid, and this being called obstinacy, his punishments were augmented, until idiocy seemed to overwhelm his reason. On his return home, to a numerous family, he was imprudently exposed as a butt to them; he was now pale, emaciated; had sunken restless eyes, sordid irregular appetite, hectic flushings; often uttered piercing shrieks, especially in the night, beating his head violently with his hands; somnambulism rendered him very troublesome. Still many persons thought that all this arose more from perverseness of temper than any thing else; hence these vented their disapprobation by a push or a blow, and oftenest on the head.

"Thus he lived in continual fear, mechanically bowing his head, and shrugging his shoulders, to receive the coming insult when any one approached him: hence he has been observed to crouch, and draw himself into himself, as it were, when no one has been near him, merely from some distant noise. This association being always accompanied by pain, became very durable: it has continued twenty years: his faculties are still deranged."

The general characters of confirmed and well-marked idiocy are powerfully given by M. Fodéré; and the various minor degrees in which this defect of intelligence may exist, are admirably developed in the late work of M. Esquirol.[1]

The following case is a well-marked one, though far removed in degree from the cretins of M. Fodéré. I give it in the author's words. "E., agée de vingt-trois ans, est courte de taille, mais grosse, ramassée et pourvue de beaucoup de tissu cellulaire graisseux. Le front s'élève à angle droit et aplati. Les regions temporales sont prominentes. Les cheveux châtains sont abondans et durs; les yeux bruns sont petits, louches, et presque constamment dans un mouvement convulsif qui se dirige en haut. La physionomie est douce et peu expressive. Les bras sont courts, peu souples, et se meuvent d'une manière convulsive. E. ne peut pas ouvrir franchement les mains; les doigts sont toujours flèchis, comme contractés, ils ne s'étendent qu'un à un, lentement et avec effort, le plus ordinairement l'index seul reste étendu. E. se nourrit bien, quoiqu'elle mange peu, ses déjections sont faciles; elle est regulièrement menstruie.

"Elle marche peniblement, en canetant et par saccades. Sa marche est mal assurée, aussi reste-t-elle habituellement assise. E. n'a que des sensations fugaces; elle a peu de memoire; elle reconnoit les personnes qu'elle voit habituellement; elle sait compter jusqu'à vingt et un; si on lui demande un nombre, elle montre à

[1] Esquirol des Maladies Mentales. Tome ii. p. 316.

sa manière autant de doigts qu'il y a d'unites dans le nombre demandé. Elle connoit la valeur de quelque monnaie, distingue les utensiles qu'on lui demande s'ils sont à sa portée; elle aime les fleurs et les fruits. Elle ne parle pas, mais elle entend, et va chercher l'objêt dont on lui dit le nom. Jamais elle n'a pu apprendre à parler; elle exprime ses pensées et ses affections par deux sons, l'un allongé *hi-hi-hi-i-i-i*, l'autre, *he-he-hee*, qu'elle produit en precipitant la respiration, et qu'elle module différemment suivant ce qu'elle veut exprimer.

"Les qualités affectives dominent chez cette fille. Elle est très affectueuse; elle s'attache aux personnes, avec lesquelles elle habite, et surtout à celles qui la soignent. Elle est venue de l'hospice des Orphelins avec une autre imbecille; se plâit avec elle, et lui fait part de ses alimens et de tout ce qu'on lui donne. Elle est craintive, très pudique, toujours décemment vetue. Elle témoigne son affection dans la manière de certains animaux, en s'approchant des personnes, en se frottant contre elles, et en faisant de gestes."

Both this case, however, and all the other cases adduced by M. Esquirol, involve an extent of incapacity, which, painful as it is, facilitates their treatment. Our only object here is to protect the patient against himself, and against others; and again to protect society from the aggression which persons, thus deficient in understanding, are easily led to by temper, or evil passions. For let it be observed, that idiocy, though it may be viewed, for purposes of classification, apart from disorder of the moral department, is rarely found thus separate in practice; just as brutality will eventually damage and weaken the most powerful intellect with which it may co-exist. But in the cases of idiocy above alluded to, there is no question respecting duties to be performed, and rights to be exercised by the patient; a question which involves considerable difficulty, where the deficiency is less complete. In truth, the distinction is often very difficult between the half-witted person, whose actions must be subjected to restraint, and the fool, who may be inflicted upon society, without any other risk than that of producing ennui.

The following case is on the extreme verge of the morbid state, and illustrates a form of idiocy, the interval between which, and the sane state, though impassible, is in many points a narrow one.

Mr. B., the subject of this memoir, is reported to have had fits in early life, and to have suffered extreme neglect, and some ill usage from his parents. He was known as a mischievous child, and my informant, his guardian, tells me that he would steal the hats of his father's visitors, and hide them in the cellar or coal-hole. When he became the subject of attention to his relations, the fact of his incompetency to manage himself became obvious, and was readily admitted by himself. Indeed, although he has decided preferences for various objects, which his state of restraint debars him of, such as wine, of which he is very fond, still he recognises the necessity of this restraint.

The following remarks were made by Mr. B. to his guardian. They illustrate the mixture of conscious incompetency with correct judgment, exhibited in his character.

"You are sixty-three years old, and therefore may probably die before me: (Mr. B. is forty-five years old:) now, if this should happen, what shall I do for a guardian?—Lord N., who is in the same degree of relationship to me with yourself, is younger than you are.—Will it not be better to ask him whether he will engage to succeed you in your office?"

Mr. B. requires, however, little surveillance, for he will not trust himself out of the grounds of the house in which he resides. Thus he sits near the garden wall and bargains with pedlars for articles which they sell, but carefully avoids crossing the wall. Of his own incompetency he speaks, with bitter remarks on his parents, to whose neglect he considers that he owes his misfortune.

In conversation, Mr. B. is plausible and distinct. He reads a great deal, and remembers what he has read, so far as to be able to repeat much of it: but, if stopped and questioned in regard to it, he seems at once to lose the whole, and to become absolutely bewildered. He has caught the air and words of several songs, and can play a little on the piano-forte, with the most total ignorance of notes.

When some legal measures became requisite, in relation to his estate, a doubt was naturally expressed by the gentlemen employed, whether he could properly be treated as imbecile; which was decided by a sovereign and shilling being placed before him, and his being desired to take his choice, (he is fond of money,) upon which he eagerly selected the shilling.

Mr. B.'s method of locomotion is peculiar. He shuffles in his walk, and slides, with his body bent forward, as if he were skating. Whatever he meets with in his way, whether a stone or a hole, he would stumble against, or fall into unless prevented; and this, without any imperfection of sight. Accordingly, his walks are limited to a garden terrace, in which he moves backward and forward habitually.

In appetite he is moderate. Though fond of stimulants, he readily allows himself to be limited to the daily use of two glasses of wine. He is grateful for the kindly treatment which he receives from the gentleman at whose house he resides, and, apparently, is attached to him.

The mixture of strength and weakness in this singular case gives ample room for delicate and well balanced treatment of it.

The rules *generally* applicable to the treatment of idiocy do not demand an elaborate statement. Morally, they are such as benevolence and good sense would dictate, in regard to the weakness and the follies of human nature: in a medical point of view, they should be founded on a strict observance of the laws of temperament, with one general consideration, that idiocy is an *asthenic* state, and contra-indicates depletion.

The researches of morbid anatomy have hitherto failed to shed light on the pathology of mental disease. In idiocy we are seldom without evidence that some structural affection of the brain has probably occurred. It is often prefaced by convulsions; sometimes it is the sequel of epilepsy. While these circumstances afford slender aid to our treatment of the disease, it is needless to add, that they deprive us of the faint hope which debility of intellect sometimes allows, that a curative process may be adopted.

Such is the hopelessness of congenital imbecility, and such must be the hopelessness of the *acquired* imbecility of *démence*, when produced by intense overaction of thought and feeling, or by dissipation, and vicious habits.

The paralysing influence which attends this class of phenomena may, however, operate with less intensity of mischief: it is of extreme importance that this fact should be recognised before time, or neglect or improper treatment has rendered them irremovable. The following case occurs in Sir William Ellis's late work: it enforces the above caution with a better example than any which my own experience suggests; and with it I will conclude this interesting branch of my subject.

"T. T., about fifty years of age, was found wandering in the street, and sent to the house of correction as a vagrant. He was perfectly unconscious of every thing round him, and appeared idiotic. In this state he was sent to the asylum. Though gray-headed, and looking much older than he really was, he had still the remains of a fine person. He was upwards of six feet high, with a countenance and form of head presenting a striking contrast with his imbecile state of mind. He was in good bodily health, and free from all appearance of disease, except a small ulcer on his leg. He was placed among the idiotic patients, and was apparently sinking into the last stage of fatuity. All the information that could be obtained respecting him was, that he had been a soldier. I attempted, day after day, to induce him to enter into conversation, but in vain. 'I have been a soldier,' was the most he would say. Many weeks elapsed without any improvement taking place, and his case was considered quite hopeless. A change for the better took place very suddenly. Without any previous conversation with any one, he requested the keeper to give him a sheet of paper, on which he wrote the following letter.

"'Madam,

"'I feel myself completely at a loss for an apology, which would in any way justify the liberty which I am taking. Not personally known to you, I feel a great awkwardness of addressing you, particularly in the character of a petitioner.

"'I know not, indeed, whether I can do better than state the circumstances which have induced me to adopt this measure.

"'Some time ago, driven by the greatest distress, I addressed

myself to your husband, hoping that, in consideration of our former intimacy, he would have afforded me some assistance. I remained a fortnight in London without receiving any answer;—indeed, I have no means of knowing whether this letter reached him.—Since that time, I have been a miserable wanderer through the country, without friends and without shelter. Such has been the severity of my sufferings, that my intellects became unhinged, and I am indebted to the charity of this establishment for the continuance of my wretched existence, and the prospect of being once again enabled to mix in society. Whether either the one or the other will be beneficial, I have my doubts. When discharged from this house, I have no prospect but of again becoming a wretched wanderer, without resource, and destitute of friends. The prospect is truly deplorable; and yet such, in a short time, must be my fate.

" 'These, Madam, are the melancholy circumstances which have induced me to endeavour to interest you in my fate, a measure which I never should have adopted, if I had not been fearful of a letter to your husband sharing the same fate as the last.

" 'I will not intrude farther on your time, than merely entreating you to pardon me for the liberty which I have taken, assuring yourself that nothing but the most severe distress and despair could have driven me to it.—Should your humanity be so far interested, as to induce you to afford me any assistance, believe me it will be most thankfully and gratefully received.' "

To this letter no answer was received: another letter was then written by the patient to a gentleman, who very kindly assisted him. This letter, also is given by Sir W. Ellis. I shall not, however, transcribe it, as it is written in the same style, and with the same feeling as the above, and throws no *farther* light upon the writer's character.

It appeared, on enquiry, that this gentleman had received a liberal education; that he had been brought up in expectation of having a very large fortune; but that the relative, on whom he depended, died poor. That he had, however, procured a commission in the army, and had been in India: that he was an elegant scholar, and of fascinating manners.

Sir William reports, that he left the asylum quite well; and procured a situation, which he retained for some years.

What the sequel of this case might have been, if it had fallen under less tender and merciful hands, it is impossible to affirm. The continued operation of want and misery would probably have rendered it permanent. The supposition that it was incurable, would then have realised *itself*.

CHAPTER XII.

Recapitulation.—Omissions supplied.—"*Critical terminations of Insanity.*"—Use of *nauseating remedies* in the physical treatment of Insanity.—Use and abuse of *employment* in its mental treatment.—Relative importance of physical and mental treatment.—Caution against making the Brutal state a ground of exculpation.—Success in the treatment of Idiocy, *how* most likely to be attained.—Views of Dr. Gooch.

To recal attention to the prominent features of an essay, which professes to be elementary, may appear superfluous. I will, however, risk this imputation for the sake of clearness, and at the same time anticipate my reader in noticing some omissions.

It has been assumed, that there are some deviations from health, in which mental phenomena predominate. These have been considered under three heads, with the designations of *Insanity*, *Brutality*, *Idiocy*.

In the consideration of *Insanity*, a suspension of the will has been laid down, as its essential distinction, both in relation to the *sane* state of the human mind, and in relation to the two other heads of the above class. Again, the suspension of will, which belongs to Insanity, has been distinguished from that which occurs in dreams, and in inflammation of the brain.

Brutality and *Idiocy* have been arranged in the category of mental disease in reference to a deficiency or abolition of an essential property of the human mind. The defect in the first case, belongs to the emotive department, in the second case, to the intellect.

We have prosecuted our enquiry into Insanity, first among its moral causes or preventitives; secondly, among those, which are derived from the intellect; and we have ventured to lay down certain *passive* states of the emotive department, as principally concerned in bringing it into action. To the *active* moral principles, we have attributed no such efficiency: and to the intellectual properties generally, we have attributed an influence antagonist to Insanity.

We have considered the imagination, as it regards this subject, in its reference to the intellectual and the emotive departments. In the first point of view, we have esteemed it generally beneficial; in the second, namely, in its influence on the emotive department, generally mischievous.

We have next endeavoured to describe an attack of Insanity, and to follow it through three stages, calling attention to the fact, that *its moral symptoms are the earliest in occurrence.* We have given separate consideration to its most fearful accompaniments, the tendencies to *suicide* and to *homicide.*

With respect to the first of these tendencies we have pointed out the habits of mind which lead to it without any assumption of mental disease; and we have also viewed it in its relation to the actual presence of insanity.

In estimating the relations of insanity to physical phenomena, we have omitted to notice a topic of extreme importance, which has been brought forward most ably by M. Esquirol; we will advert to it in his own terms, namely, as "the critical terminations of Insanity."[1] Among these, however, M. Esquirol classes some phenomena, which give the term an unusually extensive meaning. The occurrence of spontaneous salivation: of eruptive complaints in persons previously subject to them; of copious diarrhœa; of corpulency in persons previously rendered meager by the complaint; of suppressed hemorrhages; and above all, of the suppressed catamenia, are the heads most worthy of notice in this general use of the term. The *extreme* importance of the uterine relief has, perhaps, occasioned *less* importance to be attached to the diminution and reappearance, or to the sudden increase of other secretions and excretions.

The treatment of the insane *state* or the insane *predisposition* consists in a series of moral and medical measures, which are next considered. The points of view, in which insanity is contemplated in relation to treatment, or in other words, the division which may be made of it into species, corresponds in our scheme with the diversities of temperament; by which word we mean certain combinations of physical and moral properties, which are most frequently observed to exist in nature, and have been so designated.

In describing medical treatment I have to regret a very important omission; namely, the use of nauseating remedies in this disease. The large doses in which ipecacuanha and the tartrate of antimony are borne by the patient, without exciting the effort to vomit, and the decisive effect which they produce in shortening and mitigating the second stage of the disease, entitle them to the highest attention. In recommending measures, that may tranquillise the insane *mind*, I have omitted the important topic of *employment*. This, indeed, if cautiously managed, conduces to tranquillity. Gentle manual employment is of great avail in diverting mental irritation; and in this point the habits of females give them a valuable advantage. Of the intellectual faculties that of observation may be cultivated with the greatest advantage; it does not *imply* the continuity of action, which easily runs on into incoherent thought in the insane intellect; and it tends gradually to wean such an intellect from false perceptions.

In regard to the relative importance of physical and mental treatment, the views which I have taken of the symptoms of insanity, as being most conspicuously mental, need involve no difficulty. We are so constituted, that every physical and every mental change in us must on each side involve a reciprocal and sympathetic change. To leave the struggles of our mental nature unaided by physical expedients, would involve an arrogant neglect of advantages placed within our reach; to resign ourselves to such regulation, and to be

[1] Vol. i. p. 336—397.

just and benevolent according to the state of our abdominal viscera,[1] would be to surrender ourselves to a form of moral being, inferior in dignity to the social instincts of the brute creation.

With respect to our second head, or that deficiency of moral perceptions which we term *Brutal*, we enquire into its right to be viewed as distinct from the sane state of the human mind, and also as distinct from insanity; and we illustrate the principles, on which its treatment *ought to be* conducted. And here it is expedient to defend our hypothesis against a possible misapprehension, which might materially affect its practical results; namely, that the criminal actions of persons thus situated may claim exemption from punishment on the ground of irregularity of mind. Now, it is to be observed, that the difficulties which embarrass the question of punishment in some cases of insanity, have no place here. *The existence of delirium is not implied in the brutal state.* And with regard to questions of freedom of will founded on that deficiency of moral perceptions, which *is* implied in that state, the law does not concern itself with this question in any such form. Those who are of sufficient capacity to be aware, *that a given act is forbidden, and that they are committing it*, must pay the penalty attached to its commission, even though the faculty by which they may appreciate its moral unfitness be undeveloped in their minds.

With respect to the last head in my enumeration, namely, idiocy or imbecility, I have been contented with sketching its broad features. For copious illustrations of those features, the admirable work of M. Esquirol may be resorted to with the greatest advantage.

Copious as are these illustrations, and large as is the general quantity of fact which we possess on this subject, our therapeutics in disorders of this class are plainly defective. We want, indeed, *here*, not so much *facts*, as *hypothesis*. We require some Laennec for the cerebral system, who may infuse a new principle of diagnosis, and make our facts available to practice. Had the life and health of the late Dr. Gooch been longer spared, he might have done much;[2] for no one could better appreciate, than he could, those subtle distinctions, which tell us when we are dealing with an *asthenic* state of the brain, in disorders of infancy. Out of such distinctions, I believe, our success in treating idiocy must spring, if ever success should be granted to us.

[1] For copious illustrations of the base and discreditable side of this question, see Les Oreilles du Comte de Chesterfield, par Voltaire, chapter vii.

[2] The published opinions of Dr. Gooch, to which I advert, are those in his chapter on symptoms of children erroneously attributed to congestion of brain. The danger, which he apprehends to *life* from depletory treatment under such circumstances, may fairly be predicated of many similar patients in regard to *intellect*. The early history of most cases of idiocy is one of "fits:" and the general treatment of fits, when they are presumed to arise from a condition of the brain, is at present calculated to impair the energy of the cerebral circulation.

APPENDIX.

Note I.—Page 5.

The suspension of the power of will is here assumed. Mr. Stewart's opinions, to which I have alluded in the text, on this subject, are somewhat vague. "It may be proper to remark," he observes, "that if the suspension of our voluntary operations in sleep is admitted as a fact, there are only two suppositions, which can be formed concerning its cause. The one is, that the power of volition is suspended; the other, that the will loses its influence over those faculties of the mind, and those members of the body, which during our waking hours are subjected to its authority. If it can be shown that the former supposition is not agreeable to fact, the truth of the latter seems to follow, as a necessary consequence.

"That the power of volition is not suspended during sleep appears from the efforts which we are conscious of making, while in that situation. We dream, for example, that we are in danger; and we attempt to call out for assistance. The attempt, indeed, is in general unsuccessful; and the sounds which we emit are feeble and indistinct; but this only confirms, or rather, is a necessary consequence of the supposition, that in sleep the connection between the will and our voluntary operations is disturbed or interrupted. *The continuance of the power of the volition is demonstrated by the effort, however ineffectual.*"[1]

Surely the continuance of power is not proved by an *ineffectual* effort.

"The fact seems to be," as Mr. Stewart himself afterwards observes, "that the body is, at that time, not subject to the will."

Note II.—P. 14.

(Referred to as Note I.)

The exhibitions of mesmerism may be classed under two heads. Those, which imply the temporary abolition, or perversion, or exaltation of *ordinary* properties; and, those which imply the evolution of certain *new* properties. In the remarks of the text, I mean to advert only to phenomena falling under the first head; namely, insensibility to pain, stupor, and delirium.

The more marvellous phenomena, which fall under the second head, are contained in that state, which the mesmerists term *clairvoyance*, in the power which they assert as existing in their patients, of predicting certain physical changes; and in the supposed conveyance of a mesmeric influence through certain solids and fluids, touched by them. To those gentlemen, who have given in their adhesion to these imputed effects of mesmerism, on the faith of experiments recently exhibited in London, I will venture to submit some remarks, borrowed indeed from one of the

[1] Elements of Philosophy of the Mind, vol. i. p. 330.

soundest philosophers of the day,[1] Mr. Baden Powell, that "it is a violation of all just induction to infer a general property from too limited number of instances," and that "what constitutes a *sufficient* number of instances" must depend upon "the nature of the case," as well as the experience and power of judgment possessed by the enquirer. Thus it is the antecedent probability furnished by the nature of the case, as well as "lighted on by the ingenuity of the enquirer," which favours *confident* and *rapid* conclusions.

The necessity of such caution in regard to the phenomena of mesmerism, even where they fall under the first head, is increased by the probability of imposture, involved in the very nature of the persons on whom mesmerism is practised with success. For mendacity is a symptom of the hysterical constitution, to which class of constitutions it would appear that the best recipients of this influence belong. I know not how far the advocates of mesmerism will accept a defence against the charge of imposture, which concedes the charge as far as the character of their patients is concerned; yet, certainly, if every series of improbable facts, in which there might be some imposture, were rejected *in limine* on that account, we should deny ourselves much valuable knowledge. The mental principles which lead to falsehood in some hysterical cases, themselves involve a curious subject of research.

Physicians assert the delusive nature of hysteria. Most of us have witnessed the simulation and dissimulation practised under this state by persons of previously unblemished honor; and we readily admit the difficulties opposed to our treatment of the disease by the limited state of our pathological knowledge. Shall we then deny ourselves the means of increasing that scanty fund, which an enquiry into mesmerism might possibly afford, because, forsooth, we suspect imposture—in other words, because we suspect the existence of a symptom, which, if not an invariable concomitant, is at least one of the most frequent accidents to the disease, which we profess our wish to unravel? Yet such is the value of the reasoning employed against enquiry into mesmerism, when it is put aside on the ground of imposture, by those who admit its connection with hysteria.

Note III.—P. 28.

The following remarks occur in the theory of moral sentiments; I extract them, as they appear to suggest a different conclusion from mine. "The principle of suicide," says Mr. Adam Smith, "the principle which should teach us upon some occasions to consider that violent action as an object of applause and approbation, seems to be altogether a refinement of philosophy. Nature in her sound and healthy state seems never to prompt us to suicide. *There is, indeed, a species of melancholy, a (disease to which human nature among its other calamities is unhappily subject,) which seems to be accompanied with what one may call an irresistible*

[1] Powell on the Connection of Natural and Divine Truth, p. 22. The remarks of Mr. Powell, as establishing criteria of the adequacy of analysis, are beyond any praise that I can bestow.

appetite for self destruction." This view is apparently adopted by Mr. Smith in deference to his favourite principle. "When we have neither been able," he observes, "to defend ourselves against distress, nor have perished in that defence, no natural principle, no regard to the approbation of the supposed impartial spectator seems to call upon us to escape by destroying ourselves."[1]

Now this reasoning involves a proposition, in which few will concur with Mr. Smith; that any line of conduct must be morbid and unnatural, which we are not induced to adopt by the approbation of his supposed impartial spectator.

Note IV.—P. 41.

As the word temperament frequently occurs in this essay, I will endeavour to lay before my readers the sense in which it is used. I am the more induced to do this by some remarks which occur in an ingenious article in the British and Foreign Quarterly,[2] in which the reviewer expresses his surprise that such an "imaginary entity," as the bilious temperament, should engage attention.

The reviewer appears to forget, that the "vagueness," of which he complains in the *term*, is adherent in the *subject;* but that the uncertain expression of a given class of ideas will often be better, than no expression *at all*, provided the limitedness of the information thus conveyed be kept in mind. Mathematical statements allow of a perfect definiteness, because we permit ourselves in their case to employ a process of abstraction, which disencumbers our view of all that is not definite. But when this is attempted, and it is too often attempted, in medical description, we obtain a dry affirmation of phenomena, which neither represents the disease which we have to cure, nor the remedy which we have to use, nor the person whom we have to treat. The term Temperament has for many centuries been found a convenient generalisation; and unless we propose to sacrifice knowledge at the altar of logic, we must still be contented to use this, or some other equally indefinite term.

The following statement is extracted from an Essay, which I published in 1831, on the relation of temperament to indigestion.

"The subject of temperament has generally been considered under four heads. Thus we have the Bilious, the Nervous, the Sanguine, and the Serous Temperament.

Bilious Temperament.

"Various descriptions more or less fanciful have been given of the properties combined under the term bilious temperament; and the relation in which they stand to the phenomena of the liver.

"In some points, all who use this term, seem to agree as to its meaning. The expression bilious temperament assumes the tendency to a copious secretion of bile in the person of whom it is predicated; and this is compatible with a sound state of health. The morbid form of the temperament implies an obstructed, or vitiated, or excessive secretion.

[1] Vol. ii. p. 216, 10th Edition.
[2] Vol. v. p. 384.

"When a bilious temperament is spoken of, as it often is, in some contrast with the sanguine or with the serous temperament, a habit of body is assumed in the two latter cases in which disorders of the circulating system are most prevalent.

"In contrast with the nervous temperament, which implies irritability, the bilious supposes a state of obstruction and oppression.

"The bodily conformation of the bilious is usually represented as rigid and spare, rather than full or largely developed.

"The effect of bilious temperament upon complexion is to render it less clear, less brilliant, more sallow, than the same complexion is, whether dark or fair, under the sanguine temperament. In this sense alone, we are authorised to describe it as influencing *colour*. The *texture* of the skin seems on the other hand very materially related to temperament. In the bilious compared with the sanguine, it is harsh, and often arid. The sanguine temperament assumes a remarkable smoothness and elasticity as well as brilliancy of the skin.

"'Cependant sans cette maudite bile on ne gagne pas de grandes batailles,' said Bonaparte, according to M. Ségur, after complaining of its inconvenient effects in deranging his temper. Now, fanciful as this remark, and a great deal more of the same kind may appear, I am not prepared to assert that the universal impression as to the bilious predisposition implying peculiar qualities of a moral and intellectual kind, is unfounded.

"Among the most admitted traits, I should enumerate a gloomy but active imagination, a jealous, distrustful, and unsatisfied disposition, and an anxiously reflective cast of thought.

"The dissatisfied nature of persons thus predisposed, would account for the stirring, restless, and ambitious course of action with which they are often charged. Such *would be* the prominent features of a life, in which it is assumed that *present* and *possessed* enjoyments become, *as such*, comparatively valueless.

"One of the most distinctive features in this moral character is the combination which it often displays of extreme and restless anxiety to been gaged in some employment, with a dull lethargic state of intellect, which precludes useful exertion.

"We may, indeed, generally observe that the efforts of the bilious fall short of their aspirations.

"The works of Cabanis and Richerand may be consulted for a very diffuse and fanciful account of the temperament, which I have endeavoured to sketch.

NERVOUS TEMPERAMENT.

"The principal characteristics of the nervous temperament may, perhaps, be thus stated. First, that it is highly susceptible of impressions; secondly, that impressions once made are easily re-excited; thirdly, that when it is in the state of morbid action proper to it, the solids of the body exhibit earlier and more marked phenomena than the fluids.

"In the well developed nervous temperament, the susceptibility is so much heightened, that affections of that system are capable of being propagated, as if by infection, from one person to another. The hysterical spasms are often communicated; and it must be by this kind of

sympathy that the remarkable influences of animal magnetism[1] are produced. To say that these and similar influences operate on the imagination, and thus to represent the consequent symptoms as in some sort unreal, is a very unphilosophical escape from the difficulties of the subject. The word imagination is used in different senses at two stages of this argument. To say that in many nervous cases the imagination is highly excited, so that the morbid impression is conveyed through that medium is sound and reasonable. But afterwards in describing the case to give to imagination its other andpopular sense—that of non-reality, is to obtain our assent to an unreal proposition through a very gross logical sophism. Of course the nervous complaint may be imaginary in the latter sense of the word, that is, unreal, and so may any other complaint; but this state of the case must not be assumed, on the ground that the *faculty of imagination*, which is as real as any other that we possess, happens to be the seat of the disease.

"Nervous susceptibility may be viewed in relation to this temperament under three important heads, which I will briefly consider.

"A person of a vigorous intellect, and of a firm and intrepid spirit, may be so organised, that the loss of a trifling quantity of blood by the lancet shall produce syncope, even when he is in a high and complete state of health. Of this I know an instance in a very gallant officer, who has lost blood copiously from wounds without any such result; but whom on the above account, it is very difficult to bleed.

"Now in this case two points may fairly be assumed. First, that it is not the *quantity* of the blood taken by the lancet, but some influence produced on the nervous system of the patient, that occasions the loss of power. Secondly, that the part of his nervous system, which receives first this impression, can scarcely be considered as having any reference to his intellectual or moral character. In this case therefore, we must conclude, that the impression conveyed by the nerves is primarily of a physical kind; or in other words, that it operates on a part of his system, which does not concern him either as a moral or as an intellectual agent. Whatever suspension of the powers of mind has ensued is secondary. This kind of nervousness I shall, therefore, call bodily or physical.

"Totally distinct from this is the susceptibility of nervous affection from moral impressions; a species of nervousness which I shall call moral. It is remarkably shown in the bodily symptoms occasioned by timidity. But in each individual it must vary in form according to the class of emotions to which he is predisposed.

"Both of the foregoing species may be illustrated by the phenomena of hysteria. This affection may arise out of a series of moral feelings influencing the nerves of the uterine system, which once excited, occasion the various spasmodic symptoms distinguished by that name. Or it may arise from an irritation commencing in the womb, and not propagated from any prior emotion of the mind. In the first case, hysteria has a moral, in the second it has a physical origin. And how different will its treatment be in these two cases, if justly distinguished and appreciated!

"Thirdly, there are persons in whom some operations of the *intellect*

[1] This was written and published in the year 1831.

instantly produce a disturbance in the nervous system, which greatly interferes with the success of these operations, I have heard the sufferer describe this state of his nerves, as occasioning a cloud or mist suddenly to diffuse itself through his mind. In this way nervous defects in articulation may be explained. A gentleman of very distinguished talent, singularly free from the two forms of nervousness above described, is well known by his friends to labour under the third. The occasions on which this defect have been observed in him are usually those in which the time for the performance of an intellectual task happens to be limited, the spectators or witnesses numerous, the object important. It is not that he feels more apprehensive of competition, or more anxious about the event than other men similarly situated, but that his intellectual powers require to be humoured in every way, and are perplexed by circumstances to which others of a more hardy though less powerful intellect, would be impassive. Now this state of the understanding is liable, unless the above distinction is appreciated, to be treated as obstinacy or stupidity, or as deceit; because it wants those external phenomena of nervousness which are conspicuous in the physical, and yet more so in the moral form.

"This therefore, I shall call intellectual nervousness.

"Whether the above division is adequate and just, must be decided by more impartial judges than I can be. Of this, however, I am sure, that the practitioner who should undertake the treatment of any disease modified by the nervous temperament without possessing *some* arrangement of its phenomena, would find himself involved in perplexities difficult to unravel.

SANGUINE TEMPERAMENT.

"It may seem needless to remind my reader that I am laying before him the tendencies of the several temperaments, and not following them into their complete development. It will however be observed, in popular as well as medical discussion, that each of these temperaments is habitually associated with one of its opposed states in regard to health and disease, rather than with the other. Thus the term bilious is associated as soon as used with a train of morbid phenomena. Such is also the habitual association, when the nervous or the phlegmatic temperament is alluded to. Our first impression when these are named, presents us with the *defects* incidental to them. But the sanguine temperament seems in its ordinary form allied to healthy rather than to morbid actions. It implies a free and energetic circulation, a well developed but firm muscular system, and a powerful conformation of the whole person. The complexion is usually florid, but the principal characteristic of the temperament in *this* point is 'brilliancy.' This term best expresses in English what would, I believe, in Latin be 'nitor.' The moral and intellectual properties of the sanguine are assumed to be such as correspond with a vigorous structure. These are vivacity, energy and confidence. It is, I believe, not an ungrounded remark, that the buoyancy, the brilliancy, the joyousness of the sanguine temperament somewhat indispose the mind for persevering exertions of thought. Hence the advantage possessed in comparison with it by the bilious temperament.

PHLEGMATIC OR SEROUS TEMPERAMENT.

"The main characteristic of this temperament is a deficiency of energy. It admits of a division into two heads. One embracing those cases in which the want of energy appears connected with a want of excitability; the other comprising those in which it is connected with a want of power.

The first of these divisions is well described by the popular term *relaxed*, the other is the basis of the asthenic or feeble constitution, and, as such is productive of the long and melancholy class of scrofulous affections. In both of these forms of the serous temperament, the natural complexion is most frequently pallid. In both there is a remarkable absence of buoyancy and resiliency of habit. But the skin of the relaxed person, though pallid and bloodless differs wholly from the unwholesome delicacy of the asthenic, and his muscular system is often even largely developed, while, on the other hand, in the asthenic form it usually happens, that the bodily structure, if not actually small, is rather fat than muscular. Persons of the relaxed habit are colourless; while the complexion of the asthenic is often of a delicate redness. The pulses of both, except when fever occurs in the asthenic, are languid; but the languor of the relaxed seems connected with sluggishness, that of the asthenic, with feebleness. In the relaxed person there may, indeed, be power, but it is dificult to communicate an impulse which may bring that power into action. In the asthenic the impulse communicated is indeed felt; but it elicits no reaction. It only exhausts.

In regard to moral and intellectual characteristics, as well as those which are purely physical, the serous temperament is well distinguished into the above varieties. The habitual sluggishness of simple relaxation, and on the other hand, the feeble virtues and vices and the languid conceptions of the asthenic class are easily recognised. The character of Dr. Johnson was apparently of the first kind; which, it may be remembered, is compatible with power. Such were *his* strong but cumbrous exertions, slowly excited by the stimulus of necessity. . . . Without some reference, indeed, to his languid temperament it is difficult to account for the indifference with which a man so competent and so disposed to investigate could leave questions of extreme philological importance to take their chance in the course of his execution of his dictionary.

For instances of the asthenic class we must not explore the annals of intellectual or moral greatness. In its simple form this kind of character passes through life unnoticed and unattractive. When complicated with the nervous temperament, it produces a kind of sensitive but powerless enthusiasm, which is in low repute as a quality of *men*, but is often painfully beautiful in the other sex; painfully, I say, because in the latter case we *can* give it our sympathies. For the want of defensive power, which it implies, and which we are always disposed to treat contemptuously, when observed in man, is no blemish in the character of woman.

Note V.—P. 48.

"Morum tempora illi diversa; egregium vitâ famâque, quoad privatus vel in imperiis suis sub Augusto fuit; occultum et subdolum fingendis virtutibus donec Germanicus et Drusus superfuerunt: idem inter bona

malaque mixtus incolumi matre: intestabilis sævitia sed obtectus libidinibus, dum Sejanum dilexit timuitive, postremo in scelera simul et dedecora prorupit, postquam, remoto pudore et metu, suo tantum ingenio utebatur."[1]

The terrible state of mind habitual to this bad man, is shown in the following letter from him to the senate;—"Quod scribam vobis P. C. aut quomodo scribam, aut quid omnino non scribam, Dii me deæque prejus perdant, quam perire me quotidie censeo, si scio."[2] This letter does not relate to any peculiar emergency, nor does it express any specific source of dissatisfaction, but the unaffected bitterness of his character, overcoming for a moment his ordinary dissimulation.

Note VI.—P. 49.

The classification of vice afforded by Aristotle gives us three leading divisions.

The first head is that form of vice, through which a man errs against his judgment, and deliberate choice, under the influence of passion. The second is that in which his deliberate choice has been corrupted and made to conspire with his inclinations; in the first case, the moral principle, as we should call it, is conquered, but not corrupted. In the second case, its corruption has been effected. The third form of vice, which may be deduced from the ethical writing of Aristotle is that which I alluded to in the text; in which the faculty of moral choice is non-existent, or undeveloped.

I am not aware of any other writer, who has traced the above important distinction with equal clearness and depth.

Note VII.—P. 50.

N. B., aged 16, was described to me by his father, who came to consult me, in regard to his management, as a boy of a singularly unruly and untractable character, selfish, wayward, violent without ground or motive, and liable under the paroxysm of his moodiness to do personal mischief to others; not, however, of a physically bold character. He is of a fair understanding, and exhibits considerable acuteness in sophistical apologies for his wayward conduct. He has made little progress in any kind of study. His fancy is vivid, supplying him profusely with sarcastic imagery. He has been subjected at different times, and equally without effect, to a firmly mild and to a rigid dicipline. In the course of these measures, solitary confinement has been tried; but to this he was impassive. It produced no effect.

He was last in a very good seminary in a town in ———, where he drew a knife upon one of the officers of the establishment, while admonishing him; and produced a deep feeling of aversion in the minds of his companions, by the undisguised pleasure which he showed at some bloodshed which took place in this town during the distubances of 18—.

He has not appeared to be sensually disposed, and he is careful of property. His bodily health is good, and he has never had any cerebral

[1] Saciti Annal, lib. x.
[2] Lib. vi.

affection. This boy was further described to me as progressively becoming worse in his conduct, and more savagely violent to his relatives Still I easily discovered that he was unfavourably situated; for his relations appeared to be at once irritable and affectionate; and the total failure of various plans of education was throwing him entirely upon their hands.

As an instance of the miserable pleasure which he took in exciting disgust and pain, I was told, that when 13 years old, he stripped himself naked and exposed himself to his sisters.

When I saw him, (December 8th, 18—) he received me courteously but suspiciously; his demeanor was soft, but there was a bad expression about his mouth; I believe his *eyes* gave him the appearance of softness; they were large and dark; his skin was smooth; he was small of his age, not having grown for some years. On my addressing him in regard to his peculiarities, he equivocated and became irritable; and he asserted that he was under impulses which he could not resist. He spoke unkindly of his father, and tried to snatch out of my hand a very wicked letter written by himself to one of his relatives, which I produced as an evidence of his misconduct. This peculiarity seemed to pervade his views of his own conduct,—that he contemplated past offences, not only as what could not be recalled, but also, as what ought not to be remembered to his disadvantage.

Having satisfied my mind by careful observation, that the accounts given by his relatives were substantially correct, and that the ordinary principles of education, however skilfully applied, would here lead to no salutary result, I suggested the following line of treatment, as calculated to give him his best chance of moral improvement. Let him reside in the neighbourhood, or, if possible, in the family of some person competent to undertake this charge, under the attendance of two trustworthy men, who should be subject to the authority of the superior above alluded to; one of these persons should be in *constant* attendance upon him; but if coercion should be required in order to induce him to comply with reasonable requests, both should be employed so as not to make such violence necessary as should produce the slightest bodily pain. The object of this plan would be to accustom him to obedience, and by keeping him in a constant state of the exercise of this quality, for such a length of time as might form a habit, to adapt him to live in society afterwards, on terms of acquiescence in its rules.

Now the principle of management suggested here, is that ordinarily applied to insane patients alone; but this young man could not be considered insane in any accredited use of the term. He was totally free from false perceptions, or inconsequential thoughts; he was neat in his person, agreeable in his address, and of an intellect above rather than below par. Yet, education in its appeal to the moral principle had been tried on him in many various forms with total unsuccess: youth was advancing into manhood; and his chances of attaining a state, in which he might be a safe member of society, were becoming slender according to any of the usual methods of moral education.

The case seemed to warrant the application of the principle recommended; and after much thought, I determined to try it in the only way in which it was practicable *to me*, namely, in the walls of an establishment, a few miles from the place in which I resided, the proprietor of

which was well known to me for excellent judgment and an amiable character.

I took him to this establishment, accompanied by his father and another relative, showed him at once into his apartment; and briefly told him, why he was placed there; and how inflexible he would find his restraint there, until he should have gained habits of self-control. At the same time I pointed out to him the beautiful and wide grounds of the establishment, and the many comforts and enjoyments which he might command by strict obedience. This I stated to him in the presence of his two relatives, whom I then at once removed from the room. When I saw him about an hour afterwards, the nearest approach to surprise and annoyance which he made, was the expression, "that he never was in such a lurch before." He wished to see his father again before he left the house, not, however, apparently from motives of feeling, but in order to address some persuasives to him against the scheme. I refused this interview.

For about a fortnight he behaved extremely well. He then lost his self-command, kicked his attendant, and struck him with a bottle of medicine. On this, I went over to see him; he vindicated himself with his usual ingenuity; but looked grave and somewhat frightened,—when I told him, that if he repeated this offence, he would be placed in a strait waistcoat, not indeed as a punishment, but as a means of supplying his deficiency of self-control. He expresses no kindly feeling towards his relatives; but confesses the fitness of his treatment and confinement. It appears to me, that he is tranquillised by his utter inability to resist.

January 16th, 18—. Visiting N. B. to-day, I told him, that he might write letters to his father or uncle, but that he would at present receive none from them. To have refused him permission to write letters would have been tyrannical; besides, they would afford insight into his character; to have allowed him to *receive* letters, would have been an interference with that principle of entire separation from his family, which I wished to maintain, until he should have learned the value of those ties to which he has been indifferent. He made complaints in very unimportant matters against his servant, to which I paid attention, but gave no credence. Great unfairness in these remarks. I have endeavoured to make him understand, that in dealing with Mr. N——, the proprietor of the establishment, and myself, he can neither enjoy the pleasure of making us angry, nor hope for advantage from sophistry. But that strict justice will be done him, upon the terms originally stated to him.

In a letter to his father about this time, I observe—"the plan evidently works well. He is practising self-restraint successfully; not indeed from conviction of its moral fitness, but from having ascertained its necessity. He is aware of the state of entire subjection in which he is placed; and yet his spirits do not flag, neither does his health suffer. It is curious, that he has ceased to use his old argument in conversation with me, that past conduct ought not to be taken into the account in regard to present proceedings." From the time above alluded to, during his stay at the establishment, which I continued for fourteen months, no farther outbreak against authority took place. He ceased to be violent, because the indulgence of violence would imply risk of inconvenience to himself, without the comfort which he had formerly derived from it in exciting the anger of his friends or giving them pain.

Sophistry was thrown away upon us; his complaints of the hardship involved in the nature of the restraints imposed upon him, namely, the limitation to the grounds of an establishment, and to regular hours, and the constant presence of an attendant, were met by a calm affirmation, that he had himself admitted the necessity of control; and that he had surmounted every other form of it. I encouraged correspondence with myself; but, when any one of his letters was insolent or wayward, I declined accepting the next letter, until some time should have elapsed. He read much; for we supplied him with books, and I sometimes engaged him in literary conversation; two or three times I obtained from him a tolerably well construed Latin lesson. This, however, was to him a school of moral rather than intellectual advancement. A sustained attempt at private tuition would, under present circumstances, have supplied too many opportunities of irritation between the master and the scholar. The temper requisite for the reception of knowledge, and the cultivation of the intellect was *being formed*, and could not safely have been *assumed*. The same consideration induced me to postpone applying to him the motives and sanctions of revealed religion. It gradually became observable, both to myself and the proprietor of the establishment, that he was becoming comparatively happy: he entered freely and with little acrimony into conversation with us. His complaints of the injustice of his detention became formal, and assumed the character of lodging a protest, rather than making a remonstrance. Sometimes he very undisguisedly admitted the freedom from unhappiness, which he experienced in his present state, and compared it favourably with that in which he had previously lived, always wretched himself, but occasionally enjoying the miserable comfort of making others yet more wretched. In the course of several of my interviews, I observed the valuable influence exercised on him by the fear of becoming irregular in mind, through the indulgence of intemperate violence. The place, in which he was staying, had supplied him with a few cases in point. One young man, who had struck his father, and from that time was a wretched maniac, drew his attention.

He generally dined alone; occasionally, by invitation, with Mr. N.'s family. He associated with some of the patients. He never made any attempt to escape from the place; in fact, he felt himself mastered, and submitted.

After he had been about a year in this place, he exhibited a trait of character, which gave us pleasure. We found that he had given ten shillings to an attendant on his leaving, by whom we had reason to believe, that he had not been very respectfully treated.

But the increasing quietness, with which he adverted to, and remonstrated against his detention, most tended to assure us, that we might soon bring it to a close.

The time indeed was now arriving, at which it seemed reasonable to bring to a conclusion a method of treatment, which nothing could have justified in the case to which it was applied, except the extreme importance of the principle which it embodied, and the difficulty of finding any other means of carrying that principle into effect. By the month of May, I obtained for my young friend a private tutor, a clergyman, in whose family he should reside on leaving the establishment with three or four other private pupils, and I determined, that he should be removed thither

by one of those relatives, who had conveyed him to the establishment. The following extract from a letter, which I wrote to his father, May 18th, ——, refers to this circumstance—

"On the 15th of this month, Mr. —— performed the anxious duty of removing your son from the establishment, in which he had resided fourteen months. When I review the time there spent by him, and the plan there adopted, I feel a strong belief, that this plan has been a wise one, and will turn out a successful one. There are two points of view in which its success may be estimated: one of them, the lowest, that it may enable your son to pass through life comfortably, and with a due acquiescence in the habits of society: the other, that it may have formed a basis on which moral habits may be constructed; so that, eventually, right conduct may be pursued by him, not merely as expedient, but as right. The progress actually made by your son is threefold. He is tranquillised; he is furnished with the power of restraining himself; and he has found out the pleasure of living in an orderly and regulated manner. It is indeed curious, in regard to the latter point, that he has more than once assured me, that he had experienced more happiness at ———, than he ever recollected to have experienced before. This statement he has made to me very undesignedly." I may observe, that this young man had grown remarkably, and improved in health, during his stay at the establishment. No medicine, except an occasional aperient draught, had been given him.

At the private tutor's, my young friend was considered gentlemanlike, and companionable; if opposed and thwarted, he showed no symptoms of his *ancient* violence: waywardness was discoverable occasionally, but it was no longer a property which defied self-control.

On leaving his tutor's at the end of about a year, in order to commence professional studies, he dined and slept at my house, and conducted himself in a cordial and agreeable manner.

In order that the successful issue of this case, verified, as it has been, by my subsequent enquiries, should not place the system under false colours, I may observe, that I do not think, that it could have been carried out in this form, but for certain points of character existing in the patient, which adapted him to the treatment applied. Without possessing active courage, he had much firmness and power of endurance; and although his scanty moral principle had not given him habits of veracity, yet he possessed in a high degree the tendency to think aloud: he was naturally frank. Indeed the openness with which he would let out those thoughts, which it was most his interest to keep secret, was in constant contrast with the perfect unfairness and disingenuousness of his arguments in support of *them*, or in vindication of his conduct. Now the firmness of his character enabled him to endure what would have shocked weak minds, the name of a mad-house; while his frankness made it *impossible* for him to conceal his thoughts and feelings, and thus enabled both myself and the excellent proprietor of the establishment perfectly to estimate the effect of our measures on his character while they were proceeding.

One valuable application I was enabled to make to this interesting case, of which circumstances had precluded the use to those, who had previously been concerned in its management. My pupil had been treated with affection, he had been tenderly entreated to conduct himself well, he

had been threatened, he had been scolded, he had been punished; *but he had never been praised.* His hardness of heart had prevented him from feeling the appeals of affection, his pride and inflexibility had enabled him to set threats, scoldings, and punishment at defiance. For praise there had been little room in his past history. But while I was wielding over him the terrible infliction of continued confinement, the firmness, with which the last mentioned attributes of his character enabled him to bear it, gave ample opportunities for praise; and although self-esteem predominated over vanity in his character, still he received this tribute with pleasure, on account, perhaps, of its novelty, as well as its agreeableness. Meanwhile the circumstances, under which it was given, effectually prevented it from raising him in an undue degree in his own opinion.

To those who are conversant with the regulations of lunatic asylums, a question may occur, how this case was brought before the visiting magistrates in their visitations: the answer to this question involves a curious fact in the conduct of the patient. I distinctly laid before these gentlemen, to whom I was well known, the phenomena of my patient's mind, not as involving either insanity or idiocy, but as incapacitating him for self-management to as great a degree, as either of those states could. I explained the principles on which I hoped to give him the requisite power of self-control, or possibly to awaken the moral sympathies of his character. My explanation appeared to them satisfactory: it certainly was borne out by the improvement, which they noticed, as time proceeded, in his expression of countenance. Meanwhile I had expected with some anxiety, that my young friend would have taken a very natural advantage of his interviews with these gentlemen to procure his own enlargement. His gentlemanlike appearance would have aided the eloquent appeal, which I knew he was very capable of making; and I prepared to meet the difficulty as I best might. Nothing, however, happened. On such occasions he received the visiting magistrates in his apartment without expressing any dissatisfaction with the place, or making the slightest allusion to his *confinement* there. How far pride contributed to this reserve; how far, again, the imposing character of the restraint, to which he was subjected, had impressed him with the idea, that to struggle against it would be useless, and that patience was his best policy, I was unable to determine.

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